676

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	
	)	
Philadelphia Electric Company	)	Docket Nos. 50-352
	)	50-353
(Limerick Generating Station, Units 1 and 2)	)	

APPLICANT'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW IN THE FORM OF A PARTIAL INITIAL DECISION RELATING TO OFFSITE EMERGENCY PLANNING CONTENTIONS

Philadelphia Electric Company, Applicant in the captioned proceeding, in accordance with 10 C.F.R. §2.754 and the Atomic Safety and Licensing Board's "Schedule for Filing of Proposed Findings of Fact and Conclusions of Law" (January 28, 1985), hereby submits its Proposed Findings of Fact and Conclusions of Law in the Form of a Partial Initial Decision Relating to Offsite Emergency Planning Contentions. Also enclosed are Applicant's Proposed Transcript Corrections and a revision of Applicant's Exhibit List to include exhibits proffered and admitted after submission of the earlier list in the course of the evidentiary hearing.

Respectfully submitted,

CONNER & WETTERHAHN, P.C.

Troy B. Conner, Jr.
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Nils N. Nichols

Counsel for the Applicant

February 19, 1985

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

BEFORE ADMINISTRATIVE JUDGES:
Helen F. Hoyt, Chairperson
Dr. Richard F. Cole
Jerry Harbour

In the Matter of	)	
PHILADELPHIA ELECTRIC COMPANY	)	Docket Nos. 50-352-OL 50-353-OL
(Limerick Generating Station, Units 1 and 2	)	
	)	_____, 1985

APPEARANCES

Troy B. Conner, Jr., Esq., Robert M. Rader, Esq., and Nils N. Nichols, Esq., of Conner & Wetterhahn, P.C., Washington, D.C., for Philadelphia Electric Company

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Zori G. Ferkin, Esq., Governor's Energy Counsel, and Mark L. Goodwin, Pennsylvania Emergency Management Agency, Harrisburg, Pennsylvania, for the Commonwealth of Pennsylvania.

Michael Hircsh, Esq., Office of the General Counsel, Federal Emergency Management Agency, Washington, D.C., for FEMA.

Martha W. Bush, Esq., Law Department, for the City of Philadelphia

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Suzanne B. Ercole, Esq., of Prince & Prince, P.C., Pottstown, Pennsylvania, and Phyllis Zitzer, Maureen Mulligan, and David Stone, for Limerick Ecology Action.

TABLE OF CONTENTS

THIRD PARTIAL INITIAL DECISION
(On Offsite Emergency Planning Contentions)

I. INTRODUCTION

This is the Third Partial Initial Decision ("PID") issued by this Atomic Safety and Licensing Board ("Licensing Board" or "Board")[1/] in this proceeding.[2/] Except for offsite emergency planning contentions, the first PID and second PID decided all issues admitted for litigation before this Licensing Board and resolved them in favor of Applicant. The third PID now disposes of those remaining issues in favor of Applicant.

On March 17, 1981, Applicant applied for operating licenses for the Limerick Generating Station, Units 1 and 2, which is located in Limerick Township, Montgomery County, Pennsylvania. As stated in Applicant's Final Safety Analysis Report at 1.1-1, Applicant sought licenses to operate two boiling water nuclear reactors, each with a rated core power

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1/ By notice issued September 25, 1984, the Board was recorstituted to comprise the present members, replacing Mr. Brenner and Dr. Morris with Mrs. Hoyt and Dr. Harbour.

2/ The first PID was issued on March 8, 1983 and resolved the litigated issues in favor of Applicant Philadelphia Electric Company, subject to certain conditions. Philadelphia Electric Company (Limerick Generating Station, Units 1 and 2), LBP-83-11, 17 NRC 413 (1983), aff'd in part, remanded in part, ALAB-785, 20 NRC 848 (1984). The remanded issues relating to the appeal from the first PID were resolved in favor of Applicant without the need for an evidentiary hearing. Limerick, supra, "Memorandum and Order on Del-Aware's Remanded and Revised Environmental Contentions V-14 and V-16" (November 8, 1984), appeal pending. The second PID was issued on August 29, 1984. Limerick, supra, LBP-84-31, 20 NRC 446 (1984), appeal pending. The second PID decided all issues in controversy which were prerequisite for authorization of the low-power operating licenses requested by Applicant pursuant to 10 C.F.R. §50.57(c).

level of 3,293 megawatts thermal and a net electrical output of 1,055 megawatts.

Pursuant to notice of receipt of the application published in the Federal Register,[3/] two intervenors, Limerick Ecology Action ("LEA") and Friends of the Earth in the Delaware Valley ("FOE") (admitted as a joint party with its representative Mr. Robert L. Anthony), proposed contentions relating to the offsite emergency plans for Limerick.[4/] Because the various jurisdictions within the plume exposure emergency planning zone ("EPZ") for Limerick had not yet issued draft emergency plans intended to conform to the emergency planning requirements under 10 C.F.R. §50.47 and the regulatory guidance under NUREG-0654, the Licensing Board deferred consideration of the proposed offsite emergency planning contentions.[5/] Once draft offsite plans suitable for framing issues were available for review, intervenors proposing offsite emergency planning contentions were required to refile and respecify their proposed contentions.[6/]

At a prehearing conference held the week of March 5, 1984, the Licensing Board ruled on the admissibility of the proposed contentions. A number of contentions were admitted on behalf of LEA. One contention was admitted on behalf of FOE and combined with a related LEA

3/ 46 Fed. Reg. 42557 (August 21, 1981).

4/ Limerick, supra, LBP-82-42A, 15 NRC 1423, 1438-39 (1982).

5/ Id. at 1519.

6/ Limerick, supra, "Memorandum and Order Confirming Schedules Established During Prehearing Conference" (May 16, 1983) (slip op. at 4-5).

contention, for which LEA was designated the lead intervenor.[7] The contentions proposed by other intervenors were either rejected or subsequently settled.[8] Following a period of discovery and the Board's final respecification of the admitted contentions,[9] thirty-seven days of evidentiary hearings on the contentions were held between November 19, 1984 and January 29, 1985 in Philadelphia, Pennsylvania.

The regulations and adjudicatory decisions of the Nuclear Regulatory Commission ("Commission" or "NRC") provide that offsite emergency planning contentions are to be decided somewhat differently than other contentions admitted for hearing. Further, as discussed below, the Board's adjudicatory findings on any admitted contentions are only part of the overall findings which the NRC must make with regard to emergency preparedness prior to the issuance of a full-power operating license. The rules governing emergency planning for the NRC are contained in 10 C.F.R. §50.47 and 10 C.F.R. Part 50, Appendix E. Under the NRC's regulations, issuance of an operating license for a nuclear power reactor requires that the NRC find that there is reasonable assurance

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7/ Limerick, supra, 19 NRC 1020, 1069 (1984).

8/ A contention admitted on behalf of the Commonwealth of Pennsylvania ("Commonwealth"), relating to the adequacy of dosimetry for emergency workers, was subsequently withdrawn upon agreement by Applicant to purchase the necessary dosimetry. See Appl. Exh. E-104. On January 25, 1984, the City of Philadelphia withdrew its two admitted contentions related to the protection of the City's public water supplies on the basis of an agreement reached with Applicant (Tr. 20350-52).

9/ Limerick, supra, "Memorandum and Order Ruling on Reworded and Respecified Offsite Emergency Planning Contentions" (September 24, 1984) and "Memorandum and Order on LEA's Deferred and Respecified Offsite Emergency Planning Contentions" (October 26, 1984).

that adequate protective measures both on and off the facility site can and will be taken in the event of a radiological emergency.[10/] With regard to the adequacy of offsite emergency planning, the NRC must "base its findings on a review of the Federal Emergency Management Agency ("FEMA") findings and determinations as to whether State and local emergency plans are adequate and whether there is reasonable assurance that they can be implemented."[11/]

Pursuant to the Presidential Order of December 7, 1979, FEMA is to assume lead responsibility for all offsite nuclear emergency planning for fixed nuclear facilities.[12/] Generally, the standards for judging the adequacy of onsite and offsite emergency response plans are contained in NUREG-0654,[13/] which is cited in 10 C.F.R. §50.47(b) as appropriate guidance. NUREG-0654 does not constitute the only method of meeting applicable regulatory requirements for emergency planning. In the absence of other evidence, however, adherence to NUREG-0654 demonstrates compliance with the Commission's emergency planning regulations.[14/] The role of FEMA in NRC licensing is set forth in the

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10/ 10 C.F.R. §50.47(a)(1).

11/ 10 C.F.R. §50.47(a)(2).

12/ See note 16, infra.

13/ NUREG-0654, FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (Rev. 1) (November 1980).

14/ Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit No. 1), ALAB-698, 16 NRC 1290, 1298-99 (1982); Southern California Edison Company (San Onofre Nuclear Generating Station, Units 2 and 3), LBP-82-39, 15 NRC 1163, 1270 (1982), aff'd, ALAB-717, 17 NRC 346 (1983).

"Memorandum of Understanding Between NRC and FEMA Relating to Radiological Emergency Planning and Preparedness (executed on November 3-4, 1980) ("MOU").[15/] Under the MOU, FEMA is required, in addition to any responsibilities under 44 C.F.R. Part 350 for final, formal approval of State and local emergency plans, to provide "findings and determinations on the current status of emergency preparedness around particular [nuclear power plant] sites . . . for use as needed in the NRC licensing process."[16/] As distinguished from the final findings under 44 C.F.R. Part 350, such determinations are typically referred to as "FEMA interim findings."

We touch on this briefly because considerable testimony was adduced from the FEMA witnesses as to the rendering of FEMA interim findings for Limerick. As discussed below, the Board does not regard the completion of those findings as germane to our decision here. Although FEMA interim findings are to be given the weight of a rebuttable presumption in an NRC licensing proceeding,[17/] the MOU recognizes that interim findings may not be available at the time offsite emergency planning contentions are decided in an evidentiary hearing. Accordingly, the MOU further provides that FEMA routine support for the NRC licensing process "will include providing assessments of State and local plans," and that,

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15/ 45 Fed. Reg. 82713 (December 16, 1980).

16/ Id. at 82714.

17/ 10 C.F.R. §50.47(a)(2).

"[t]o support its findings and determinations, FEMA will make expert witnesses available," inter alia, before NRC licensing boards.[18/]

Accordingly, it is the responsibility of the NRC Staff, taking due regard of the FEMA interim findings related to the offsite plan, to make the findings required under 10 C.F.R. §50.47(a)(1) for issuance of a full-power operating license. A licensing board, by contrast, is limited to considering only those emergency planning issues in controversy among the parties.[19/] A licensing board is not required to await FEMA interim findings, but rather should base its own findings, as to any admitted contentions, on all of the evidence to determine whether reasonable assurance exists that offsite emergency plans are adequate and capable of being implemented. This would typically include the testimony of technical experts and consultants, governmental emergency planners and other officials, and any other individual with relevant, material and reliable testimony.[20/] A board should also consider any approved emergency plans or the current version of draft plans in preparation for adoption, and any other documents which bear upon the adequacy or implementability of those plans. Accordingly, a licensing board's evidentiary findings are independent of the FEMA interim findings.

Another distinction is crucial to the Board's analytical framework. Unlike other safety-related findings by a licensing board, offsite

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18/ 45 Fed. Reg. 82714 (December 16, 1980).

19/ 10 C.F.R. §2.760a; 10 C.F.R. Part 2, Appendix A, Section VIII.

20/ 10 C.F.R. 2.743(c).

emergency planning findings are predictive rather than merely descriptive in nature. Recognizing that development of offsite emergency plans is a dynamic, evolving process, the Commission's regulations require only a finding that the plans are adequate and capable of being implemented, not that they have been finally approved or adopted by the respective State and local governments.

This distinction has been emphasized by the Appeal Board in several cases. For example, in San Onofre, the Appeal Board noted that plans need not be complete prior to the close of hearings, stating:

> Substantively, the evidence must be sufficient for the Board to conclude that the state of emergency preparedness "provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." 10 C.F.R. §50.47(a)(1). The Commission has stressed that this conclusion may be a predictive one, rather than reflection of the actual state of emergency preparedness at the time of the Board's decision. 47 Fed. Reg. at 30233.21/

The Appeal Board reiterated this important distinction in the Waterford proceeding, noting that, at one time, the Commission's regulations required a finding that "the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency."22/ The Appeal Board pointed out that the reference to the "state" of emergency preparedness was deliberately eliminated from the

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21/ San Onofre, supra, ALAB-717, 17 NRC 346, 380 n.57 (1983) (emphasis added).

22/ Louisiana Power and Light Company (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1103-04 (1983), citing 46 Fed. Reg. 61135 (December 15, 1981).

regulations.[23] In the same rulemaking, the Commission emphasized that "there should be reasonable assurance prior to license issuance that there are no barriers to emergency planning implementation or to a satisfactory state of emergency preparedness that cannot feasibly be removed."[24] In Waterford, the Appeal Board concluded that, for purposes of licensing decisions, offsite emergency plans "need not be 'final,'" but only "sufficiently developed to permit the board to make its 'reasonable assurance' finding."[25]

Finally, the Appeal Board in Fermi expressly held that NRC regulations do not "mandate either a final local government emergency plan or a final evaluation of offsite preparedness by FEMA, the agency that has the principal responsibility to conduct such an evaluation."[26] Noting earlier decisions that hearings may be based upon plans "sufficiently developed" to support affirmative findings, the Appeal Board stated that "it is plain from the Commission's regulatory requirements that offsite plans need not be complete, nor finally evaluated by FEMA prior to conclusion of the adjudicatory process.[27]

23/ Id. at 1103.

24/ Id. at 1104.

25/ Id.

26/ Detroit Edison Company (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-730, 17 NRC 1057, 1066 (1983).

27/ Id. The Board notes that none of the offsite emergency plans for the five nuclear power plants in Pennsylvania has yet received formal approval from FEMA under 44 C.F.R. Part 350 (Hippert, Tr. 19571-72).

These principles have important application here, given the status of offsite emergency planning for Limerick. As discussed below, practically all of the various school district, municipal and county emergency plans (Appl. Exhs. E-1 to E-61; Chester County/Commonwealth Exh. E-1) were awaiting formal adoption at the time of the hearing. Moreover, the Pennsylvania Emergency Management Agency ("PEMA") had not at that point formally received the plans admitted in evidence for its review (see Commonwealth Exhs. F-13a, b, c). Under the formalized procedures for receipt and review of offsite emergency plans from PEMA, FEMA had likewise not yet commenced its review of the draft plans received into evidence (Kinard, Tr. 20328). As the FEMA witnesses testified, it is FEMA policy to review only those plans and related documents which it receives from either PEMA (see LEA Exh. E-1, p. 1; LEA Exh. E-71, p. 1), or the NRC upon a formal request to review those materials (Asher, Tr. 20167-68; Kinard, Tr. 20308, 20322-23). On the basis of that formal request and review, FEMA expects to forward supplemental interim findings[28/] to the NRC pursuant to the NRC/FEMA MOU (Asher, Tr. 20167-68).

Inasmuch as the FEMA witnesses had not yet had an opportunity to review the current draft plans received in evidence (Asher, Tr. 20304; Kinard, Tr. 20330), they were simply not in a position to address the

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28/ The Regional Assistance Committee ("RAC"), Region III, FEMA, forwarded an informal evaluation of the offsite plans to the NRC in April 1984, based upon its review of plans submitted by PEMA in December 1983 (FEMA Exh. E-6). The RAC review resulted in the issuance of an initial set of interim findings by FEMA, dated April 17, 1984 (FEMA Exh. E-7). As discussed below, the plans received into evidence were far more advanced than those reviewed by FEMA.

adequacy or implementability of several aspects of the plans challenged by the LEA and FOE contentions. They acknowledged that their testimony would be changed just on the basis of other testimony before the Board (Asher, Tr. 20330). Nonetheless, the FEMA witnesses generally testified that applicable planning standards would be satisfied if the plans in evidence now reflect the information provided by the testimony of Commonwealth, county, municipal, school district and expert witnesses, which updated the status of planning in the various jurisdictions. Thus, incompleteness of the FEMA review at this time, including the receipt of any further planning documents necessary for that review, does not impede this Board's ability to make the necessary predictive findings.29/

The Board is satisfied that there is ample evidence upon which to make sound predictive findings. Applicant presented Robert Bradshaw, John Cunnington and Robin Wenger as a panel of witnesses from Energy Consultants, retained by Applicant in 1982 to assist local governments within the Limerick EPZ in preparation adequate emergency plans. Energy Consultants has been actively engaged in that support function for two years by preparing draft plans for the risk counties, municipalities and school districts, utilizing prototype plans approved by PEMA and input from each respective unit of government. Based upon their consultant and liaison responsibilities, the Energy Consultant witnesses possessed

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29/ Nor is it the Board's task to address FEMA's review of outstanding deficiencies noted in Region III's April 1984 interim findings (FEMA Exh. E-7) and its written evaluations of the July 25 and November 20, 1984 Limerick exercises (FEMA Exhs. E-4, E-5), except as they pertain to specific contentions.

detailed knowledge of the emergency plans and training programs. The Board found them to be well qualified by position, training and experience to explain the status and content of those plans and has relied heavily on their testimony. Similarly, the Board found Robert Klimm, who prepared an Evacuation Time Estimate study for the Limerick EPZ, to be highly knowledgeable and qualified in the area of transportation and traffic engineering and has also relied heavily on his testimony.

The NRC Staff, FEMA and Commonwealth of Pennsylvania also presented witnesses whom the Board found to be knowledgeable, competent and credible to the extent they were familiar with the details of the plans. As noted, their reviews are in progress. Accordingly, the Board has relied heavily on their testimony to the extent the witnesses were conversant with the present status of plans and planning within the Limerick EPZ.

LEA subpoenaed a number of municipal officials to explain the status of planning in the respective townships. Those officials had almost entirely delegated responsibility for the development of a workable plan to their respective emergency coordinators, who were charged with submitting and recommending approval of a workable plan. Accordingly, those municipal officials had not yet reviewed their plans in great detail. While those witnesses attempted to be helpful, there were many instances in which they simply lacked an understanding of basic emergency planning assumptions as well as the plans themselves. The Board has given their testimony appropriate weight. Certain non-governmental witnesses sponsored by LEA were very uncooperative and exhibited unwillingness to learn about emergency planning for their

facilities. Hence, they knew very little about existing plans which have addressed or could address their concerns.

A number of the contentions challenge the adequacy of particular aspects of emergency preparedness, such as notification of emergency workers, or the adequacy of planning for particular categories of the population, such as school children and children enrolled in day care facilities. Other contentions more broadly challenge the capability to implement the plans and question whether the plans will in fact be adopted. Accordingly, the Board has not addressed the admitted contentions in numerical order, but rather in a sequence which provides the clearest understanding of the issues in controversy.

II. FINDINGS OF FACT

A. APPLICANT'S EVACUATION TIME ESTIMATES STUDY

LEA-23

> The draft county plans are deficient because they do not contain reliable evacuation time estimates.

LEA-24/FOE-1

> There is no assurance that plans for evacuation of the ten mile radius will not be impeded by traffic congestion in the vicinity of Marsh Creek State Park, Exton area (involving Route 100) and Valley Forge Park, King of Prussia area.
>
> These areas should either be included in the Emergency Planning Zone or adequate plans for traffic control and direction should be made to avoid adverse effects on EPZ evacuation.

Methodology and Validity of Evacuation Time Estimates Study

1. Applicant retained HMM Associates, Inc. ("HMM Associates") of Concord, Massachusetts to prepare an evacuation time study of the

Limerick EPZ. HMM Associates thereafter prepared "Evacuation Time Estimates for the Limerick Generating Station Plume Exposure Emergency Planning Zone - Final Draft" (May 1984) ("ETE study"). (Klimm, ff. Tr. 13794 at p. 1, Tr. 13795; Appl. Exh. E-67).

2. Robert Klimm, an employee of HMM Associates, served as the project manager for the ETE study (Klimm, Tr. 13795) and was the principal author of that study (Klimm, Tr. 13799). The Board accepts Mr. Klimm as an expert in the area of traffic and transportation engineering (Klimm, Tr. 13813-14). He has been personally involved in most of the 20 or more site evacuation time estimate studies prepared by HMM Associates (Klimm, Tr. 13816). In fact, most traffic and transportation engineering studies conducted by HMM Associates since 1980 have been performed under Mr. Klimm's direct supervision (Klimm, Tr. 13818).

3. Mr. Klimm was one of the principal developers of the NETVAC computer simulation traffic model used in the ETE study (Klimm, Tr. 13820). This model was developed by HMM Associates in conformance with NUREG-0654 and has been reviewed and found acceptable by the NRC at several nuclear power plants, including Susquehanna (Klimm, Tr. 14050, 14086).

4. NETVAC is a state of the art traffic simulation model which accurately reflects a wide range of population densities and traffic flows expected during a large-scale evacuation. Essentially, the model simulates the movement of vehicles along a roadway network, utilizing accepted traffic engineering principles and practices. Model inputs are variables that take into account the population, vehicle loading and actual roadway characteristics (Klimm, Tr. 13821-23).

5. Validation tests of the NETVAC model against real life data and results developed using other models establish that it is extremely accurate in simulating traffic flow. Accordingly, the time estimates developed using the NETVAC model are extremely accurate (Klimm, Tr. 13905-07).

6. The methodology and assumptions used in the ETE study have been utilized at numerous sites throughout the country and have been determined to adequately address the criteria established in NUREG-0654 (Klimm, Tr. 13990, 14050). The NRC Staff's witness, Thomas Urbanik, an expert in the evaluation of evacuation time estimates prepared for fixed nuclear facilities in the United States, agreed that the ETE study is consistent with the assumptions and methodologies of NUREG-0654, Appendix 4 (Urbanik, Tr. 19223). He also testified that the evacuation time estimates contained in the ETE study were reasonably developed and soundly based (Urbanik, Tr. 19277).

7. The methodology and assumptions utilized for the ETE study were reviewed with PEMA officials and emergency preparedness officials from Chester, Montgomery and Berks Counties. As a result of those meetings, the ETE study included input from local officials and planners, especially with respect to the Valley Forge National Park/King of Prussia area as well as the Marsh Creek State Park/Routes 100 and 113 area. Subsequent to its meetings with PEMA and local officials, HMM Associates developed a draft of the ETE study and reviewed it with those jurisdictions with regard to assumptions, methodology and input which had previously been discussed and offered a further opportunity for comment prior to submission of the final draft ETE study (Klimm, Tr. 13883, 13910).

8. Consequently, while the overall methodology for simulating traffic flow conforms to NUREG-0654, the details on evacuation routing and traffic flow, particularly those areas discussed with local officials, were site-specific (Klimm, Tr. 13884).

9. HMM Associates did not participate in the designation of evacuation routes for the EPZ. Those routes had been established by the Pennsylvania Department of Transportation ("PennDOT") and were reviewed by Commonwealth and county officials. Nonetheless, upon commencing its study, HMM Associates reviewed the designated routes and found them reasonable (Klimm, Tr. 13893).

Data Base for the Evacuation
Time Estimates Study

10. Roadway capacity is the maximum number of vehicles able to traverse a particular roadway or travel through an intersection. Roadway capacities vary, depending on the type and geometrics of the roadway. Capacity, as a determination of the maximum flow along a roadway, is independent of actual demand, i.e., it is always the same for a particular roadway at any given time (Klimm, Tr. 17063).

11. Given general characteristics for a two-lane road or multi-lane divided expressway, certain assumptions may be made about roadway capacity. However, those assumptions do not yield roadway capacities which are as specific as those reflecting actual field records of lane widths, approach widths, traffic control and other data (Klimm, Tr. 13830).

12. All roadway network data which appear in the various appendices to the ETE study were field recorded (Klimm, Tr. 13872). Each roadway link and intersection was measured; no values were assumed and no values

were adopted from earlier studies. The measured data included distances for lanes and approach widths, distances to obstruction and various other roadway network data (Klimm, Tr. 13872-73).

13. In determining roadway capacity, the ETE study also took into account the geometric characteristics of each intersection and adjusted them to account for the effect of right- and left-turning vehicles. "Geometrics" refers to the physical configuration of a particular roadway or roadway sections and includes consideration of the number of lanes and the distance to obstruction or shoulder width, curvature of the roadways, grade and any other permanent factors affecting travel speed along the particular roadway. Traffic control measures present at each relevant intersection were also considered (Klimm, Tr. 13900, 17056-57).

14. Intersection approach calculations were performed on the basis of several variables, e.g., approach capacity, type of traffic control (stop sign or signal), amount of green time at the intersection and the effect of right- and left-turning vehicles (Klimm, Tr. 13900-01). The acuity of any particular intersection angle was taken into account by recording the effect that right- and left-turning vehicles had on traffic flow, i.e., the higher the percent of turning vehicles, the lower the capacity for through movement (Klimm, Tr. 13901-02). Typically, the field data teams also recorded movement at the most restricting or confining point along that road, which would frequently be a curve (Klimm, Tr. 13902-03).

15. Having collected these data, HMM Associates then utilized the Transportation Research Board's Highway Capacity Manual (1965) and Transportation Research Board Circular 212 (1980) as sources for the

algorithms used in the NETVAC model to define (1) the relationship between the speed of evacuating vehicles versus traffic density, and (2) actual roadway capacities, including intersection capacities (Klimm, Tr. 13874-76). This methodology for application of site-specific data represents standard traffic engineering practice (Klimm, Tr. 13881).

16. The time estimates for Limerick are reasonable, given the current radiological emergency response plans, including plans for traffic control and access control (Klimm, Tr. 13974).

Representative Fair and Adverse Weather Conditions

17. The primary purpose of evacuation time estimates is to serve as a tool in the protective action decision-making process by providing a framework within which decision-makers can incorporate input on evacuation characteristics and traffic flows at the time of an actual emergency. As such, pursuant to NUREG-0654, time estimates are intended to be representative and reasonable so that any protective action decision based on those estimates would reflect realistic conditions. Obviously, an overly conservative estimate could result in an inappropriate decision (Klimm, Tr. 13871, 13908, 17046).

18. Neither NRC regulations nor NUREG-0654 establish a standard for effectuating evacuations within a given time. Stated differently, the purpose of an evacuation time estimate study is to indicate the range of times required to evacuate the EPZ under a limited number of commonly occurring events so as to permit decision-makers in an actual emergency to make an informed decision as to the appropriate protective action, based upon actual conditions. An evacuation time estimate study does not attempt to predict exact conditions during an evacuation. Rather,

it attempts to indicate the sensitivity of the analysis to a limited number of commonly occurring events (Urbanik, ff. Tr. 19203 at pp. 3-4, Tr. 19240-41; Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 33).

19. Therefore, it is not the intent of NUREG-0654 to require the analysis of a "worst case" scenario. Rather, the intent of NUREG-0654 is simply to present representative evacuation times for fair and adverse weather conditions which can be used by decision-makers (Klimm, Tr. 13908, 14034, 17046). A worst case adverse weather scenario is beyond the realm of usefulness for planners (Urbanik, Tr. 19227).

20. A reduction in roadway capacity of 30 percent for adverse weather was assumed in the ETE study (Klimm, Tr. 13860, 13907). This reduction factor was based upon empirical data and reviewed to ensure that site-specific characteristics were considered. The 30 percent capacity reduction factor, which was used at other nuclear power plants in the Commonwealth, was also reviewed with both PEMA and county planning officials, who considered it appropriate (Klimm, Tr. 13908-09, 14062, 17047).

21. A 30 percent reduction in roadway capacity and travel speeds for adverse weather conditions represents a condition where it might be snowing and visibility would be impaired, roadway speed would be reduced and driving conditions in general would be degraded. This situation would translate into an inch or two of snow and includes possibly icy roadway conditions (Klimm, Tr. 13907-08, 17046-47). There is no assumption in the ETE study that the roadways in question would be plowed during a storm (Klimm, Tr. 13907, 17044-45). A reduction factor of greater than 30 percent would not provide useful input because that

would represent a storm where snow plowing would be necessary and the unpredictable time associated with snow plowing would have to be incorporated (Klimm, Tr. 17078).

22. The time needed to clear roads of snow might vary significantly depending upon the weather, precipitation, temperature, and available resources. Officials of the agency responsible for snow plowing, the Pennsylvania Department of Transportation ("PennDOT"), would be stationed at both the Commonwealth and county EOC's. Information as to road conditions would be factored into the decision-making process to decide the appropriate protective action recommendation (Klimm, Tr. 17044-45).

Preparation and Mobilization Times

23. The ETE study also accounted for the possibility that people at work outside the EPZ would return to the EPZ and then leave from their homes. This was done by incorporating a distribution of preparation and mobilization times into that study. Accordingly, the ETE study does not instantaneously load vehicles onto the evacuation routes at the time of notification to evacuate. Rather, there is a distribution of times which allows for varying preparation and mobilization periods for different members or segments of the population, including those who may return to the EPZ prior to evacuating (Klimm, Tr. 13869-70, 14037-38). Section 5 of the ETE study describes the evacuation preparation and mobilization times for each population category (Klimm, Tr. 13967-68). Various appendices identify major population categories, including permanent residents, transients and special facilities, based upon the population, vehicle demand and location (Klimm, Tr. 13835, 13999).

24. Based upon discussions with PEMA and county officials, it was assumed that no vehicles would begin to evacuate during the 15-minute notification period plus the minimum preparation/mobilization time of 15 minutes for all population sectors (Klimm, Tr. 14062). On the same basis and with regard to site-specific data, it was determined that preparation and mobilization times in the event of an accident would range from 30 minutes to 150 minutes after notification (Klimm, Tr. 13869-70, 14038-39).

25. The ETE study utilizes a one-hour mobilization time (30 to 90 minutes following notification) for school buses. The one-hour mobilization time for school buses is site-specific for the Limerick EPZ and, as discussed with PEMA and county planning officials, was deemed to be representative and realistic. It includes the total time required to drive the buses to the schools and load students onto them. As a worst-case scenario, driver mobilization time would exceed one hour. For the ETE study, however, a worst-case scenario was not desirable (Klimm, Tr. 17260; Cunnington, Tr. 17258-59; Klimm and Cunnington, Tr. 17373-74).

26. Traffic flow simulation in the ETE study treats buses the same as other vehicles, except that buses are deemed to be the equivalent of two automobiles (Klimm, Tr. 17264). School evacuation would not affect evacuation time estimates because vehicle demand associated with schools is insignificant compared with overall traffic flow. Moreover, the preparation and mobilization time associated with schools is significantly less than those for permanent residents (Klimm, Tr. 17375). Because it is extremely unlikely that buses would be among the last vehicles to enter the evacuation network, buses are not critical in

determining evacuation time estimates for the entire EPZ (Klimm, Tr. 17265-66).

Pre-existing Traffic Flows

27. The ETE study did not assume a pre-existing flow of traffic on particular roadway links. Instead, all vehicles within the EPZ were considered by simulating their movement from their respective points of origin. This was done whether the vehicles were actually in the area at the time of notification or were outside the area and driven into the EPZ before departing (Klimm, Tr. 13866, 17062). The movement of vehicles driven by permanent residents was simulated from their homes. The movement of vehicles by others, e.g., transients and those at schools, nursing homes and other special facilities, was simulated from their exact location. Accordingly, the ETE study accounts for all vehicles likely to be in the Limerick EPZ under a variety of conditions, at different seasons of the year, at different times of day, and under different weather conditions (Klimm, Tr. 13866-67, 14035). To simulate evacuation traffic superimposed on existing traffic would have resulted in a double counting of those vehicles, which would represent an inaccurate base flow (Klimm, Tr. 13866-67, 13870; Urbanik, Tr. 19215).

28. It is not useful to compare actual peak hour traffic with predicted flows in the evacuation network analyzed in the ETE study. There is simply no correlation between traffic patterns which would be associated with evacuation of the Limerick EPZ and those associated with commuter travel at peak times (Klimm, Tr. 17040). Evacuation scenarios are not comparable to peak hour traffic conditions because vehicle origin and destination as well as traffic control measures would differ (Klimm, Tr. 13911, 17062). Likewise, the total daily vehicle count

along a particular route is irrelevant to an evacuation analysis because daily flows constitute two-way, 24-hour flows (Klimm, Tr. 17053).

Inbound Traffic

29. The ETE study accounted for traffic entering the EPZ upon notification of an evacuation by utilizing a range of preparation and mobilization times to include those who would re-enter the EPZ to unite with families before evacuating (Klimm, Tr. 17048; Proposed Findings 23-24). The NETVAC model simulated traffic control described in the Limerick offsite plans, i.e., that unauthorized access to the EPZ would be restricted, but not prohibited (Klimm, Tr. 13999).

30. Any member of the general public would be permitted to re-enter the EPZ during the initial phases of an evacuation in order to implement an evacuation of their families. Two-way traffic will be maintained for emergency vehicles and members of the public who must enter the EPZ to implement a family evacuation. The ETE study assumes existing roadway utilization and traffic control devices as advised by PEMA (Klimm, Tr. 14087-88; Appl. Exh. E-67, p. 2-3). Inbound roadways are not used for evacuation and are thus available for vehicles re-entering the EPZ. In addition, traffic controllers would be located throughout the evacuation network and along all evacuation corridors to control movement in the inbound as well as the outbound direction. Accordingly, outbound traffic would not be affected by the inbound traffic (Klimm, Tr. 14000-01, 14059, 17087; Appl. Exh. E-67, p. 2-3).

31. A reverse peak flow re-entering the EPZ upon notification to evacuate, equal in size to the evacuating flow, constitutes an extremely unrealistic scenario (Klimm, Tr. 14053, 14055). It would be totally unreasonable to assume either an instantaneous entry of vehicles from

outside the EPZ or an instantaneous evacuation from within the EPZ. For either entry into or departure from the EPZ, a realistic time distribution should be assumed (Klimm, Tr. 14055).

Traffic Control and Access Control Points

32. Table 7.2 of the ETE study contains traffic control point locations derived from the three county plans. Those locations were determined by Commonwealth and county authorities on the basis of local information (Klimm, Tr. 14083). Traffic control and access control points for the county and municipal plans have been designated and staffed through direct coordination with the Pennsylvania State Police. This information was presented to the municipalities, which determined whether other areas needed traffic or access control. The municipalities applied their own resources to those points and referred any unmet staffing needs to the counties (Bradshaw, Tr. 17297).

33. In selecting traffic control points, one must be careful not to confuse day-to-day traffic flows with anticipated traffic in an evacuation (Urbanik, Tr. 19204, 19206-07).

34. At the time of the July 25, 1984 exercise, 71 police officers were made available by police departments outside the Limerick EPZ to meet a need of about 20 officers to man traffic control and traffic access points within the Limerick EPZ. Montgomery County has estimated that it would have double or triple the actual number of police officers required for traffic control and access control responsibilities in the county in an actual emergency (Cunnington, Tr. 17298-99).

35. Traffic control measures would be in place at the time an evacuation would commence, which would not be until about half an hour after notification. That would allow ample time to mobilize and station

required traffic control personnel (Klimm, Tr. 13941). Traffic control measures are not intended to eliminate queuing, but to improve efficiency in the management of traffic throughout the roadway network (Klimm, Tr. 14091).

36. The historic record indicates that evacuating individuals ordinarily obey traffic officers at traffic control points and traffic access control points. It would be useless to make any other planning assumption (Urbanik, Tr. 19225).

37. While the Staff witness stated that it might be necessary to identify additional traffic control points outside the EPZ in the southeastern area, no specific points were designated which would be necessary (Urbanik, Tr. 19280-81). There is no problem in establishing additional traffic control points for any areas beyond the EPZ for which they may be necessary (Urbanik, Tr. 19228-29; Proposed Findings 46, 56, 69).

Vehicle Queuing

38. Traffic congestion predicted in an evacuation time estimate study does not indicate an inability to evacuate an area in a timely fashion. As stated in the ETE study, significant traffic queuing will occur during an evacuation. Traffic congestion indicates a short-term capacity deficiency which, with time, is eliminated (Urbanik, ff. Tr. 19203 at p. 4).

39. Appendix 11 of the ETE study provides several graphical representations of the EPZ to illustrate roadway sections where vehicle queuing would likely occur, i.e., those locations where some vehicles would not be moving at that particular time. Those graphics illustrate locations of queuing, not the magnitude of queuing at that time (Klimm,

Tr. 13845, 13925, 14026), and merely represent a "snapshot" of traffic flows at an instantaneous point in time. By comparing the graphics, one sees locations at which queuing would occur consistently throughout a simulated evacuation (Klimm, Tr. 13926-27).

Review of Areas Outside the EPZ

40. HMM Associates also reviewed the road system external to the EPZ to determine the potential effect that congestion outside the EPZ might have on vehicles exiting the EPZ (Klimm, Tr. 13825, 13904). As part of its site-specific review, HMM Associates conducted field surveillance of areas outside the EPZ which it had determined might possibly give rise to operational or geometric constraints affecting vehicle evacuation from the EPZ (Klimm, Tr. 13811).

41. HMM Associates also examined traffic at a distance outside the EPZ to determine if there were any roadway restrictions located along evacuation corridors which could have an impact upon evacuating vehicles. For example, it examined highway ramps which, during periods of evacuation, could act as capacity constraints and result in queuing and congestion along a given corridor. (Klimm, Tr. 13937).

42. Except for particular areas along main evacuation routes where traffic control would be necessary to effectuate an evacuation of the EPZ, such as the Valley Forge National Park and Marsh Creek State Park, it was determined that there was no need to consider traffic originating from areas beyond the EPZ inasmuch as evacuation along corridors from outside the EPZ would not significantly affect evacuation times of vehicles leaving the EPZ, due to the distance of population centers from the EPZ or excess roadway capacities. Given those factors, no

congestion would occur which would affect evacuation along the corridors from the EPZ (Klimm, Tr. 13952, 13955-56, 13970-73).

Marsh Creek State Park and the
Route 100/Route 113 Evacuation Corridors

43. Based upon discussions with PEMA and county planning officials, HMM Associates did not assume that there would be a spontaneous evacuation of areas outside the EPZ. It did, however, review different corridors and take into account some locations outside the EPZ, such as the Marsh Creek State Park, where it was thought that exiting traffic might have some impact on traffic evacuating from the EPZ, in that instance, along Routes 100 and 113 South (Klimm, Tr. 13952-53).

44. Due to the high number of Marsh Creek State Park visitors, particularly during the summer months, and the fact that most visitors would enter the park from Route 100, inclusion of this population category in the evacuation analysis was considered appropriate by Chester County planning officials (Klimm, ff. Tr. 13794 at pp. 2-3). Accordingly, the ETE study utilized estimates of park attendance for both peak summer weekends and winter weekday conditions, which bound visitor population at other times of the week or seasons of the year. Population and vehicle demand associated with the Marsh Creek State Park were included in the analysis for both winter and summer evacuation scenarios for the immediate area of Chester County and the entire EPZ (Appl. Exh. E-67, pp. 3-25, 3-26, A6-3).

45. Although an alternative means exists to evacuate traffic from the park away from Route 100, it was decided, based upon discussions with Chester County planning officials, to assume that park visitors would exit by way of Park Road (the main park entrance) to Route 100 and

be directed south (Klimm, ff. Tr. 13794 at p. 3, Tr. 13967, 13970, 17055). Accordingly, the ETE study assumes that a peak traffic flow of 4,250 vehicles might be evacuated by this route along with other traffic directed south along Route 100 (Klimm, ff. Tr. 13794 at p. 3; Appl. Exh. E-67, p. A6-3).

46. An access control point has been established immediately beyond Marsh Creek Park at the intersection of Park Road and Moore Road to provide the capability to divert traffic from east on Park Road to south on Moore Road. If this option were utilized, an additional traffic control point could be established at the intersection of Moore Road and Dorlan Road directing traffic southwest on Dorlan Mills Road to Route 282, where another traffic control point could be established to divert traffic south. Thus, traffic exiting the park would never enter the EPZ (Klimm, ff. Tr. 13794 at p. 3, Tr. 13967; Appl. Exh. E-69).

47. It was also assumed in the ETE study that preparation and departure times for visitors to the Marsh Creek State Park would be consistent with those of other transients within the EPZ (Klimm, Tr. 13968). As demonstrated, visitors exiting from the park would not affect evacuating traffic (Proposed Findings 43-46). Therefore, ETE study time estimates do not depend upon whether visitors to the Marsh Creek State Park actually receive notification of an evacuation order. The same is also true for the Valley Forge National Park, discussed below (Klimm, Tr. 14086-87).

48. Accordingly, the analysis of traffic movement towards the intersection of Routes 100 and 113 includes assumptions as to the peak number of visitors at the Marsh Creek State Park. The effect of traffic

generated by the Marsh Creek State Park was therefore considered and analyzed in the ETE study (Klimm, ff. Tr. 13794 at pp. 2-3, Tr. 13966).

49. Traffic flows along Routes 100 and 113 South were fully analyzed on the same basis as other main evacuation corridors. Traffic control points were established to preclude a bottleneck at their intersection, which is outside the EPZ (Proposed Findings 50-53).

50. Evacuees from Spring City Borough, East Vincent Township, East Pikeland Township, and West Pikeland Township would evacuate via local roads to Route 113 South, to Gordon Drive, to Route 100 South, to the West Whiteland Township building (previously Exton Mall) (Klimm, ff. Tr. 13794 at p. 4; Appl. Exh. E-67, pp. 4-7, 4-8). Traffic control points have been designated at the intersections of Gordon Drive and Route 113 (Traffic Control Point No. 2903) and Gordon Drive at Route 100 (Traffic Control Point No. 2902) to control and expedite the flow of evacuating vehicles along this corridor. Evacuees using this route will not be permitted to continue south on Route 113 past Gordon Drive (Klimm, ff. Tr. 13794 at p. 4, Tr. 13950, 14064; Appl. Exh. E-67, p. 7-10; Appl. Exh. E-69).

51. As further indicated in the ETE study, evacuees from West Vincent Township, Upper Uwchlan Township, Uwchlan Township, and the eastern portion of East Nantmeal Township would use local roads to Route 100 South, to Route 113 South, to the Downingtown High School (Appl. Exh. E-67, pp. 4-7, 4-8). A traffic control point will be established at the intersection of Route 113 and Route 100 (Traffic Control Point No. 2901) to ensure that evacuees using this corridor would not merge with those evacuating from the previously identified townships (Appl. Exh. E-67, p. 7-10). Those evacuees using this route, including those

evacuating the Marsh Creek State Park, would use Route 100 South and would be required to turn onto Route 113 South. Thus, these evacuees would not be permitted to continue on Route 100 South to the West Whiteland Township Building. The use of traffic control points to direct and divert traffic flows as indicated thereby precludes unanticipated traffic volume in the direction of West Whiteland Township Building (Klimm, ff. Tr. 13794 at pp. 4-5, Tr. 13950, 14064; Appl. Exh. E-69).

52. Possible traffic congestion at the intersection of Route 100 South and the Downingtown interchange of the Pennsylvania Turnpike was considered. It was determined, based upon discussion with PEMA, PennDOT and county officials, that most vehicles evacuating along that route would continue south on Route 100. No Commonwealth or county official has yet determined a need for traffic control at that intersection (Klimm, Tr. 17056).

53. Evacuation routes identified in the ETE study represent the primary routes to be used by evacuees. Use of other roadways would certainly be expected in the event of an emergency evacuation. Thus, the ETE study did not assume that all vehicles evacuating along Route 100 South would continue on Route 100 once out of the EPZ. The ETE study assumed that some vehicles evacuating south on Route 100 might utilize the Pennsylvania Turnpike as an alternative at that point or choose to enter Route 30 further south, even though these roadways are not identified as primary evacuation routes. Neither choice away from Route 100 would have any impact on the evacuation time estimates in the ETE study (Klimm, ff. Tr. 13794 at pp. 3-4, Tr. 13954, 14082).

Valley Forge National Park and the
Route 363 Evacuation Corridor

54. Only a very small northwest tip of the Valley Forge National Park lies within the EPZ. There is nothing there other than a small parking lot and trailhead (Fewlass, Tr. 14563-64, 14649, 14657). The National Park Service informed planners that only very limited recreational activity exists in that portion of the park (Fewlass, Tr. 14696). The National Park Service did not ask PEMA to incorporate any portion of the park within the EPZ (Fewlass, Tr. 14659).

55. Representatives of the National Park Service have met approximately four times with various representatives of the Commonwealth, Chester County and Montgomery County to discuss notification procedures and the responsibility of the National Park Service in facilitating traffic flow through the park as it leaves the EPZ (Fewlass, Tr. 14563, 14566).

56. The National Park Service will receive notification at the alert stage from Chester County (Fewlass, Tr. 14680). The Park Service would then inform park visitors of the alert so as to give them the opportunity to take whatever action they felt prudent. This could be accomplished by the various public address systems in the park's buildings and patrol vehicles (Fewlass, Tr. 14681). The capability exists to establish traffic control points within the park to facilitate traffic flow at that point just as is done on a routine basis on busy weekends (Fewlass, Tr. 14682-83).

57. In the opinion of the National Park Service, the majority of park visitors informed of an emergency at the alert stage would voluntarily evacuate the park at that time (Fewlass, Tr. 14594). The

National Park Service has not, however, seen the need to adopt a formal plan to evacuate park visitors (Fewlass, Tr. 14602-03, 14648).

58. The park can be rapidly evacuated. During a recent celebration where approximately 2,000 automobiles were concentrated in the vicinity of the park amphitheater, it took only 45 minutes for those vehicles to exit the park (Fewlass, Tr. 14608).

59. Pre-existing park traffic was not loaded onto evacuation routes for the ETE study because most of the park, especially the portion primarily used by visitors, lies outside the Limerick EPZ. Moreover, it is easy to control access of vehicles from the park onto evacuation routes (Klimm, Tr. 13884-85).

60. With the exception of a small portion of its northwest corner, Valley Forge National Park lies outside the EPZ. To its east, Valley Forge National Park is bordered by Route 363. Most of the park's entire southern border is bounded by the Pennsylvania Turnpike. The Schuylkill Expressway Extension either borders or passes through the northern extremity of the park. Route 252 traverses the western end of the park and is located some distance within the park boundary on that side (Appl. Exh. E-92).

61. The National Park Service has agreed to provide traffic control assistance at the intersection of Routes 23 and 252 and, if requested by the counties, at other locations, such as the intersection of Routes 23 and 363 (Fewlass, Tr. 14567, 14683-84). Vehicles along Route 252 would be restricted from turning into the park if it would impede the flow of evacuation traffic (Klimm, Tr. 17048). Vehicles may be permitted to enter the park by Route 23 East if, in the judgment of park officials, it would not create additional traffic problems (Fewlass, Tr. 14569).

Even if some unforeseen problem were to occur, the National Park Service has stated that it will continue to cooperate with Commonwealth and county planning officials with regard to any matter concerning the park (Fewlass, Tr. 14679).

62. The normal queuing which occurs during rush hour traffic at the intersections of Routes 23 and 252 and Routes 23 and 363 is not related to the traffic patterns which would exist at the time of an evacuation along those routes in an actual emergency (Fewlass, Tr. 14576; Klimm, Tr. 13911; Proposed Finding 28). Traffic control points are not in place at those intersections during normal rush hours (Fewlass, Tr. 14682-84).

63. Likewise, figures for average daily vehicle counts entering the Park on Route 23 at its western boundary are unrelated to traffic flows or patterns which would exist in the event of an actual radiological emergency. This is also true of other vehicle counts reported by the National Park Service or the total number of park visitors (Fewlass, Tr. 14613-14, 14635-37, 14642). The National Park Service representative admitted that he could only speculate as to traffic congestion along Route 23 through the park in the event of an actual emergency in any event (Tr. 14588-89).

64. Traffic congestion outside the EPZ along the Route 363/County Line Expressway evacuation corridor, which passes the eastern boundary of the Valley Forge National Park (Appl. Exh. E-92), will not impede an evacuation of the EPZ. Route 363 extends from the eastern portion of the EPZ as Trooper Road and runs south to an interchange with the Schuylkill Expressway Extension; it then extends south to an interchange with Route 23. Thereafter, Route 363 continues west on Route 23 and

then runs south-southeast through the Valley Forge/King of Prussia area to Route 202. North of the Route 23 interchange, Route 363 is a limited access, four-lane divided expressway. As the expressway continues south, it becomes the County Line Expressway at the Route 23 interchange. Therefore, the Route 363/County Line Expressway corridor is a limited access expressway from the interchange of the Schuylkill Expressway Extension southward (Klimm, ff. Tr. 13794 at pp. 5-6; Appl. Exh. E-92).

65. Vehicles evacuating from the Upper Providence and Lower Providence Townships would use local roads to Route 363 South, to the County Line Expressway South, to Route 202 (DeKalb Pike) East, to I-76 North, to Route 276 East. The evacuation corridor comprised of Route 363 (between the Schuylkill Expressway Extension and Route 23) - the County Line Expressway - Route 202 - I-76 - Route 276 is a limited access corridor. Access to and from this corridor is only available at Route 23 (Valley Forge Road), 1st Avenue, Route 202, Warner Road, and I-76 (Klimm, ff. Tr. 13794 at pp. 5-6; Appl. Exh. E-92). Access to this and other evacuation corridors will be restricted in the event of an emergency (Klimm, Tr. 13869).

66. It was a planning assumption reviewed with both PEMA and the counties that control of access to evacuation routes near the Valley Forge National Park would be required and could easily be put in place to restrict access to those routes from the park area. The same planning principle applies to those routes in the King of Prussia industrial park area and shopping mall areas (Klimm, Tr. 13885).

67. To control access to evacuation corridors in the Valley Forge National Park/King of Prussia area, only a small number of access

control points would have to be manned. It would therefore be very easy to restrict access to the main evacuation corridor. Accordingly, such restriction is a valid planning assumption (Klimm, Tr. 13886).

68. Access to Route 252 on the west side of the Valley Forge area could also be controlled very easily, although from the standpoint of developing evacuation time estimates for the entire EPZ Route 252 is not a critical evacuation corridor. Even if vehicles from the park were permitted to enter that corridor, they would not significantly affect the time estimates (Klimm, Tr. 13887).

69. Based upon discussion among HMM Associates, PEMA and county planning cfficials, it was well understood that traffic control points along the Route 363/County Line Expressway corridor would be required and could easily be established (Klimm, Tr. 13885, 13938-39).

70. The ETE study considered traffic flows outside the EPZ along Route 363, the County Line Expressway, east on Route 202, north on Route 76 and onto Route 276 (Klimm, Tr. 13936). Even if one assumes an evacuation of the Valley Forge National Park and populated areas outside the EPZ along the Route 363 evacuation corridor, it would not have any effect upon time estimates contained in the ETE study because of traffic access controls (Klimm, Tr. 14087-88, 17047).

71. Likewise, evacuation time estimates would not be affected by vehicles entering the Valley Forge Park since they would be restricted by park rangers from entering primary evacuation corridors (Klimm, Tr. 17049; Proposed Findings 61, 66-67).

Schuylkill Township

72. Norman Vutz is a Township Supervisor of Schuylkill Township, which is governed by a five-man Board of Supervisors (Vutz, Tr. 14432).

He also serves as the Emergency Management Coordinator for Schuylkill Township (Vutz, Tr. 14432). He had not discussed the ETE study with any representative of HMM Associates or any emergency planning official with regard to traffic concerns (Vutz, Tr. 14460), nor had he discussed any of the designated evacuation routes for Schuylkill Township, i.e., Route 23 East and Route 29 East, with PennDOT or PEMA officials (Vutz, Tr. 14485).

73. Mr. Vutz was not familiar with the planning principles and assumptions used in the ETE study. Mr. Vutz had not reviewed the ETE study with respect to the methodology and assumptions prescribed under NUREG-0654 and could not, therefore, state whether his particular concerns were based upon some perceived deficiency in the study or the requirements of NUREG-0654 (Vutz, Tr. 14527-30). More basically, Mr. Vutz incorrectly asserted that evacuation time estimates should be based upon worst case meteorology, including, for example, the blizzard of 1978 or some other conditions which rendered the roads impassable (Vutz, Tr. 14451, 14521-23). Mr. Vutz did not understand that it is neither prudent nor reasonable to design evacuation plans for the worst case (Vutz, Tr. 14535).

74. Mr. Vutz was principally concerned with the geometry of the intersection of Valley Park Road and Route 23, which results in queuing during the normal morning rush hour (Vutz, Tr. 14441-42). He was also concerned about whether the principle of "dynamic route selection," as used in the ETE study, implies that drivers have advance knowledge of road conditions beyond their view and with the formula in the ETE study for calculating road capacity (Vutz, Tr. 14446).

75. "Dynamic route selection" as used in the ETE study means that a driver may choose one of several alternative routes, depending upon traffic conditions (i.e., congestion) immediately upstream. There are only several locations within the EPZ, based upon discussions with PEMA and PennDOT officials, at which evacuees would reasonably be expected to make such alternative choices, as identified in Section 6 of the ETE study. Otherwise, it was determined that the prescribed evacuation routes would be followed (Klimm, Tr. 14022, 14027-28). Mr. Vutz's concerns therefore lack merit.

76. Mr. Vutz expressed his belief that the ETE study is flawed, relying on "a hunch" that it would take more than six hours to complete evacuation for Schuylkill Township under adverse weather conditions (Vutz, Tr. 14547). Mr. Vutz misunderstood the NETVAC model simulation of loading vehicles onto the evacuation network. He erroneously equated this simulation with an assumption that roads would in fact be empty at the time of an actual evacuation (Vutz, Tr. 14454-55; Proposed Finding 27).

77. Mr. Vutz also expressed concern that congestion along Route 23 during peak hours might be aggravated by the possible construction of an office condominium development in Schuylkill Township (Vutz, Tr. 14469-70). Subject to a zoning amendment, he represented that the size of Schuylkill Township's population would be doubled by this development. If this development were constructed, there would obviously be a need to increase road capacity in the area, regardless of any possible evacuation of Schuylkill Township residents (Vutz, Tr. 14470, 14494).

78. NUREG-0654, Appendix 4, states that evacuation time estimates should be updated as local conditions change. A significant population

increase in one area would be one case requiring such an evaluation. Population increases would generally coincide with roadway improvements to accommodate the particular development. Depending on its magnitude, this might require reevaluation at a later time. Such changes, however, would not occur instantaneously and could be evaluated on an annual basis (Klimm, Tr. 17043-44).

79. John Lukacs, a member of the Schuylkill Township Planning Commission, criticized the plans to evacuate the southeast portion of the EPZ on the basis of traffic surveys in Schuylkill Township. He stated that Schuylkill Township roads are relatively low-load capacity and already badly overcrowded. His discussion of the existing and projected roadway network, including roadway capacities, provided no information of any evidentiary value (Lukacs, ff. Tr. 14774 at pp. 1-2). Mr. Lukacs showed no familiarity with the planning principles and assumptions of NUREG-0654 or Annex E, nor did he state that he had even reviewed the ETE study with regard to its analysis of roadway capacities and traffic flows along evacuation corridors in the southeastern portion of the EPZ. He erroneously equated normal commuter traffic patterns with simulated evacuation flows (Lukacs, ff. Tr. 14774 at pp. 1-2; Proposed Finding 28).

Upper Uwchlan Township

80. Robert W. Fetters is the Township Constable and the Emergency Management Coordinator for Upper Uwchlan Township (Fetters, Tr. 14701). Although Mr. Fetters expressed concern regarding the number of vehicles which would evacuate via Route 100 from the Marsh Creek State Park on a summer day, and rush hour traffic conditions on Route 100 between Eagle Road and Route 113 (Fetters, Tr. 14716-18), he did not know how the ETE

study had analyzed the exit of Marsh Creek Park visitors and evacuation traffic along Routes 100 and 113 South (Proposed Findings 43-53).

81. Mr. Fetters acknowledged that, in the event of an evacuation, traffic could be diverted from the Marsh Creek State Park south along Moore Road, Dorlan Mills Road and Creek Road away from the EPZ if appropriate traffic control points were designated (Fetters, Tr. 14756-57). He could not meaningfully relate peak flows associated with rush hour traffic along Route 100 at the Downingtown interchange of the Pennsylvania Turnpike with any traffic flow or traffic pattern which would exist in the event of an actual evacuation due to a radiological emergency (Fetters, Tr. 14747-48; Proposed Finding 28).

82. Mr. Fetters asserted that Upper Uwchlan Township had insufficient staff to man the traffic control points identified in the Upper Uwchlan Township plan (Fetters, Tr. 14752). He relied upon a belief that assigned personnel from the Uwchlan Police Department, which provides police services for Upper Uwchlan Township, would be otherwise occupied in an emergency (Fetters, Tr. 14762). To the contrary, the Upper Uwchlan plan clearly describes traffic and access control provisions, existing resources and assignments made by the State Police and the Uwchlan/Upper Uwchlan police department (Appl. Exh. E-37, pp. 15, D-1, O-1, P-1; Appl. Exh. E-38, pp. D-1, O-1).

83. Finally, Mr. Fetters asserted that Routes 100 and 113 are paralyzed by any light covering of snow (Fetters, Tr. 14712). As a practical matter, the effect that adverse weather would have on any given roadway would depend upon weather conditions, rate of precipitation and ground temperature. Traffic flow analyses do not assume that any given route is automatically "paralyzed" by any amount

of snow fall (Klimm, Tr. 17053-54). Although Mr. Fetters complained that PennDOT was slow in plowing State roads in Upper Uwchlan Township after snows (Fetters, Tr. 14750), he did not take into account the concerted efforts which would be made to plow those roads in the event it were necessary to facilitate an evacuation because of a radiological emergency at Limerick (Proposed Findirgs 364-370). Moreover, he conceded that Upper Uwchlan Township has the capability to plow or cinder those roads if need be (Fetters, Tr. 14750).

Upper Merion Township

84. Ronald Wagenmann is the Township Manager of Upper Merion Township (Wagenmann, Tr. 17414), which is outside the EPZ (Commonwealth Exh. E-9). He has no formal education in traffic engineering, transportation or traffic flow simulation modeling. He was not familiar with basic traffic flow engineering texts and has never performed a traffic engineering analysis. Nor was he familiar with the methodologies and assumptions for preparing evacuation time estimate studies under NUREG-0654 (Wagenmann, Tr. 17457-58).

85. While Mr. Wagenmann testified as to the roadway capacity of certain arteries passing through Upper Merion Township, e.g., North Gulph Road, which he indicated handles approximately 26,000 to 29,000 vehicles a day, he confused roadway capacity with level of service (Wagenmann, Tr. 17433, 17463-64). The latter concept is irrelevant to emergency planning. Mr. Wagenmann properly conceded that he knew of no relationship between peak commuter traffic flow along township roads and the traffic flow associated with a Limerick emergency evacuation (Wagenmann, Tr. 17465-66, 17468; Proposed Finding 28).

B. SPECIAL POPULATION GROUPS

1. Schools

LEA-11

The draft Chester and Montgomery County and School District RERP's are deficient in that there is insufficient information available to reasonably assure that there will be enough buses to evacuate the schools, both public and private, in one lift.

Montgomery County

Compilation of Bus/Driver Resource Data from Providers

86. The Montgomery County Office of Emergency Preparedness ("OEP") determined that there are 33 bus providers in Montgomery County which could provide transportation resources in an emergency. It met directly with the managers of those providers to determine the kinds and number of vehicles operated, equipment and manpower resources, garage location and notification information. Montgomery County explained that it wished to obtain current resource data, including buses and drivers, for use in any emergency, man-made or natural, and specifically including an accident at the Limerick Generating Station (Bigelow, Tr. 14124, 14185, 14236; Cunnington, Tr. 13132, 16923-24).

87. Virtually all bus providers contacted were cooperative and provided the necessary information regarding the resources available, number of drivers (full- or part-time) and bus capacities. Information was also obtained as to normal bus runs during school sessions and the availability of buses during those periods and at other times (Bigelow, Tr. 14124-25; Cunnington, Tr. 16923-24).

88. Each provider was asked, given a request at certain times of the day or week, how many buses and drivers could be provided should an

emergency require their use at different times, i.e., daytime, evening, or weekends. Montgomery County specifically informed each bus provider that it was not looking for the highest number of buses and drivers that could be assured, but rather the most conservative number that could be stated (Bigelow, Tr. 14125, 14196; Cunnington, Tr. 16923-24). Bus providers were advised that no particular goals had been set and that the numbers provided should be very conservative (Bigelow, Tr. 14235; Cunnington, Tr. 12971-72).

89. Thus, to the extent bus companies would give priority to their ordinary commercial operations at the time of an emergency, the bus survey took that into consideration in reflecting the minimum number of buses and drivers available (Bradshaw and Cunnington, Tr. 12978).

90. Based upon its meetings with transportation coordinators, Montgomery County determined that it would be unnecessary and unrealistic to specify minimum numbers of buses available. It would be much more effective to estimate the units available and provide equipment and manpower to the maximum extent possible (Cunnington, Tr. 16924).

91. The information obtained in meetings with individual providers was entered onto bus provider survey forms prepared by the Montgomery County OEP. Those forms were then returned to the provider for verification and adjustments or corrections (Cunnington, Tr. 12972, 13129). The Montgomery County OEP utilized a standard transportation survey form to obtain bus and driver information from bus providers (Bigelow, Tr. 14183-84; Appl. Exhs. E-75, E-83, E-86, E-87, E-90).

92. Subsequently, the Montgomery County OEP sent the identified bus providers a confirmation letter containing the relevant survey information. An accompanying letter of understanding was also provided (e.g.,

LEA Exhs. E-4, E-14) to confirm the bus provider's intention to furnish buses and drivers consistent with the previous discussion between county planners and bus provider representatives, i.e., that buses and drivers would be provided to the maximum extent possible in the event of an actual emergency (Bigelow, Tr. 14125-26; Bradshaw and Cunnington, Tr. 12970-71).

93. The letters of understanding which were transmitted to the appropriate bus provider authorities had previously been discussed with the bus provider representatives. Accordingly, they understood the purpose for which the survey information was being sought and the basis upon which Montgomery County would rely upon it (Bigelow, Tr. 14231-32).

94. At this time, the Montgomery County OEP has received about 21 signed agreements from transportation providers (Bigelow, Tr. 14127, 14345, 14366).

95. Subsequently, Montgomery County sent bus providers a follow-up letter requesting updated information for the school year 1984-85. When that information is furnished, it will be added to Annex I of the Montgomery County RERP to provide current information on the availability of buses and drivers in Montgomery County. Such updating will be conducted annually (Bigelow, Tr. 14176-77, 14345; Kowalski, Tr. 16197; Cunnington, Tr. 12972; Appl. Exhs. E-76, E-99).

Format of Letters of Agreement

96. The format utilized by the Montgomery County OEP for letters of understanding with bus providers was based upon a review of 25 to 30 different bus provider agreements used elsewhere in Pennsylvania and other states, and was approved by the Montgomery County solicitor. Other formats were too detailed and legalistic and were rejected as less

workable (Bigelow, Tr. 14229-30; Bradshaw, Tr. 12968). Based upon the manner in which it had collected bus/driver resource data, the Montgomery County OEP adopted a standard format for all letters of understanding with transportation providers. The standard agreement states that the provider "agrees to provide buses and drivers to the maximum extent possible, for the use during an emergency, for transportation of individuals should an evacuation be required of Montgomery County residents affected by man-made or natural disasters, including an incident at the Limerick Generating Station" (e.g., LEA Exh. E-4).

97. PEMA was provided an opportunity to review the form of the letter of understanding used by Montgomery County for bus providers and never suggested that it was other than adequate (Bigelow, Tr. 14412).

98. The FEMA panel testified that the letters of agreement utilized by Montgomery and Chester Counties satisfy the planning standards of NUREG-0654 (Asher, Tr. 20163, 20196, 20199). A FEMA witness stated that, aside from FEMA standards, he personally felt the number of buses should be specified in the agreement (Asher, Tr. 20196-97). He apparently did not, however, understand how the agreements were developed or how they reflect the underlying survey information as conservative estimates of available buses.

99. With regard to agreements with school districts outside the Limerick EPZ for buses and drivers, the Montgomery County OEP specifically mentioned in discussions with school district transportation representatives that authorization to enter into the letter of understanding would have to be made by the school principal and perhaps by the school board superintendent. It was understood that the

transportation representative lacked that authority. The County dealt directly with the school district transportation representatives, however, because they had precise knowledge as to the number of vehicles and drivers and the kinds of buses which could be made available and were therefore best able to provide a conservative estimate of available support in an emergency (Bigelow, Tr. 14200-01).

100. The Montgomery County OEP has no reason to doubt the validity of the letters of understanding signed by the various bus providers who agreed to make their buses and drivers available to the maximum extent possible in an emergency (Bigelow, Tr. 14201).

101. Based upon discussions with private bus providers and the transportation representatives of public school districts, the Montgomery County OEP believes that transportation providers will support the county in an emergency. Verbal assurances to that effect have been received from transportation providers who have not yet executed letters of understanding (Bigelow, Tr. 14216-17).

102. Even without written or verbal agreements from each of the providers, an adequate number of buses would be available in an actual emergency. The evidence conclusively demonstrated that providers will respond in an emergency to the best of their capability as they always have, with or without an agreement (Bigelow, Tr. 14366-67; Cunnington, Tr. 12977).

103. The counties do not rely upon their agreements with bus providers as contractually enforceable. Rather, the purpose of the agreement is to reasonably determine and confirm the available resources and to assure that the providers are capable of providing those resources. This purpose is in accord with the criteria outlined in NUREG-0654,

Criterion A.3. When PEMA and FEMA reviewed the draft plans in December 1983, neither agency indicated dissatisfaction with the format of the agreements and simply stated that, upon completion, the agreements would meet regulatory requirements (Bradshaw, Tr. 12977). Although the agreements do not themselves provide for compensation, bus providers will be paid out-of-pocket expenses in furnishing buses for an emergency response. Reimbursement could come from insurance, the Applicant, settlements under the Price-Anderson Act or from PEMA under Commonwealth legislation, including P.L. 1332 (Hippert, Tr. 19602-03, 19628; Appl. Exh. E-102).

104. Montgomery County views a provider agreement as an expression of an organization's willingness to assist the County in any emergency. Emergency planners are well aware that significant resources are required to respond to a disaster or emergency. The historical record indicates that the actual response by resource providers in a disaster or emergency is consistent with the agreement which states the organization's willingness to assist (Cunnington, Tr. 12977).

105. The evidentiary record further indicates that bus providers contacted by the counties were extremely conservative in the number of buses and drivers they estimated to be available in an actual emergency. Historically, greater resources are volunteered at the time of an actual emergency than were pledged (Cunnington, Tr. 12971).

106. The record of past responses to emergencies and disasters has been documented in a number of reports such as the Hans and Sells study, which is an evaluation of evacuation risks. It is the opinion of emergency management professionals generally that the predicted response

for a radiological emergency would not be any different than for any other hazard in the historical record (Bradshaw, Tr. 12987-88).

107. The historical record also demonstrates that, in times of disaster or emergency, resources are volunteered without any particular incentives or inducements (Cunnington, Tr. 12982). This experience includes incidents at the local level where emergency management agencies have requested buses and drivers and they were promptly furnished. For example, during the Three Mile Island incident, bus providers were fully prepared to provide buses and drivers to support a potential evacuation (Bradshaw and Cunnington, Tr. 12983-84). Other circumstances in which bus providers have voluntarily responded to assist in evacuations involved fire, floods and transportation of criminal suspects (Cunnington, Tr. 12984).

108. Finally, the historical record of disaster responses indicates that typically 99 percent of the population utilizes private vehicles. Therefore, very few buses would actually be required or utilized (Bradshaw, Tr. 12986).

109. On this basis, while each individual provider in Montgomery County has provided a conservative estimate of the number of buses and drivers it would reasonably anticipate to make available in an emergency, there is every expectation that some providers would be able to furnish buses and drivers well in excess of their conservative estimates (Cunnington, Tr. 12980-81).

Limerick Assignments

110. NUREG-0654 does not require that buses be pre-assigned to particular schools. Rather, jurisdictions are afforded flexibility to

respond to the particular circumstances at the time of an emergency (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at pp. 3-4). The pre-assignment of buses and drivers could restrict flexibility in implementing the plans (Cunnington, Tr. 13722-23). There is no planning standard which mandates the pre-identification of bus drivers who would assist in an evacuation during a radiological emergency. Once a bus company has agreed to provide its bus resources for an evacuation, it has committed itself to ensuring that drivers are available, absent any contrary indication (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 25). Another reason bus drivers need not be pre-identified is that they are not emergency workers and would only be asked to drive buses as they normally do (Bigelow, Tr. 14293-94).

111. The "Limerick assignments" contained in the Montgomery County plan, Annex I, Appendix I-2, have been made only to utilize the plan as a worksheet. Bus providers have not asked and the Montgomery County OEP had not indicated specifically where buses and drivers would be assigned. Rather, bus providers have simply agreed to make buses and drivers available to the maximum extent possible for all emergencies, including an accident at Limerick (Bigelow, Tr. 14178-79, 14186, 14196).

112. Pre-assignment of buses from providers outside the EPZ to specific schools is a tactical decision best made at the time of an emergency. The speed of evacuation is not dependent upon pre-assignment of buses to schools but is a function of mobilization time, which will occur at the early stage of an emergency (Campbell (Admitted Contentions), ff. Tr. 19852 at pp. 2-3). As utilized in Annex I of the Montgomery County plan, the term "mobilization" refers to the time

necessary to have buses and drivers ready to depart and does not include travel time to their assignments (Bigelow, Tr. 14238).

113. The "Limerick assignments" in the Montgomery County plan reflect the greatest number of buses necessary to effect an evacuation. The information would be checked with bus providers at the time of an emergency, necessary adjustments would be made and final assignments would be given at that time (Cunnington, Tr. 16920-21; Appl. Exh. E-3, Appendix I-3). Procedures for making or adjusting assignments at the time of an emergency are outlined in the school district plans (Bradshaw, ff. Tr. 12761 at p. 24; Appl. Exhs. E-49 to E-61, Section V.B and Attachment 3; Appl. Exh. E-53, p. 6114.4(k) and Attachment 6).

School With Existing Contracts

114. With regard to other fixed nuclear power plant sites within the Commonwealth, PEMA has never required a school district which has an existing contract with a bus provider to obtain an ancillary agreement for radiological emergencies (Bradshaw, Tr. 16911). School district officials as well as the Montgomery County OEP and Chester County DES have taken the same position (Cunnington, Tr. 16912). It is unnecessary for a school district to enter into an ancillary agreement with a bus provider, or for the county to obtain a letter of understanding with a bus provider, to ensure that buses guaranteed under an existing contract would be provided in a radiological emergency (Cunnington, Tr. 16912).

115. The agreements sought by Montgomery County with the Spring-Ford, Methacton and Pottstown School Districts or their providers relates only to situations beyond normal school hours. The Montgomery County plan recognizes that those school districts would utilize their

transportation resources to evacuate their own schools (Cunnington, Tr. 16922-22.1, 16932-33, 16937-38).

116. When a bus provider furnishes transportation for a school district on a routine basis under contract, or where the district operates its own buses, the Montgomery County plan assigns those particular buses only to their routine school district assignment. For example, the routine bus transportation provided under contract by CMD Services for the Pottstown School District is reflected as the same assignment in the Montgomery County plan (Cunnington, Tr. 13137-38, 16922; Appl. Exh. E-3, p. I-2-7). Likewise, the buses furnished by the Levy Bus Company on a routine basis under contract for transportation of Upper Perkiomen School District children, including those who attend the Western Montgomery Vocational Technical School, are assigned under the Montgomery County Plan for that purpose only (Cunnington, Tr. 16907-09; Appl. Exh. E-3, p. I-2-8).

Unsigned Agreements

117. The only providers who declined Montgomery County's request for a letter of understanding for the provision of buses and drivers in an emergency were the Perkiomen Valley and Lower Merion School Districts (Bigelow, Tr. 14201-02, 14218). The absence of signed agreements in those two instances, however, does not have adverse implications with regard to the availability of resources from those two districts in the event of a radiological emergency.

118. The Board of School Directors for the Lower Merion Area School District has stated in a letter to Montgomery County that it would assist in an actual emergency, including one at Limerick, by providing buses and drivers to the extent possible (Appl. Exh. E-85). That

commitment is supported by the same underlying bus and driver resource data supplied by school districts which have signed agreements (Bigelow, Tr. 14128, 14218; Pugh, Tr. 16362, 16364, 16378; Appl. Exhs. E-83, E-84). The School Board did not decline to sign the proposed agreement because it was unwilling to cooperate, but rather because it was not satisfied with language in the agreement stating that it could be unilaterally rescinded by either party (Pugh, Tr. 16364) and because the district felt it could not "guarantee" a bus driver's response (Pugh, Tr. 16365). None of the agreements, however, purport to "guarantee" anything (Proposed Findings 103-104).

119. The Perkiomen Valley Area School District did not sign the proposed agreement because it intends to utilize its buses to evacuate its own students attending schools within the EPZ (Bigelow, Tr. 14128, 14201; Appl. Exh. E-56, p. A3-20).

120. The North Penn School District Board of Education has not yet taken any action on the letter of agreement forwarded by Montgomery County because it has not received it from its transportation agent, who is newly appointed and has been on extended medical leave (Starkey, Tr. 16421, 16423, 16433-34). The North Penn Board had, however, scheduled consideration of the proposed agreement for January 1985 (Starkey, Tr. 16434).

121. The North Penn School District had previously entered an agreement to use district property as a transportation staging area and a district building as a host school under the Montgomery County plan (Starkey, Tr. 16434-37). The prior agreements reflect the spirit of cooperation and sense of responsibility which could similarly be

expected in responding to a request for buses and drivers (Starkey, Tr. 16454).

122. The Board of Education has indicated that even in the absence of an express written agreement, the North Penn School District would do whatever it could to assist another school district in an emergency by providing buses and drivers (Starkey, Tr. 16451).

123. The North Penn School District employs 86 bus drivers (Starkey, Tr. 16431). In order to fulfill the assignment for North Penn School District buses and drivers under the Montgomery County plan, as reflected in the bus survey form filled out by the district transportation agent, only 42 of 86 available drivers would have to be available (Starkey, Tr. 16458; Appl. Exh. E-86).

Transportation for Private Schools

124. State law requires public school districts to provide transportation to nonpublic schools within ten miles of the district boundary (Bigelow, Tr. 14348; Kowalski, Tr. 16195).

125. A number of school districts within the FPZ have indicated that they will not assume primary responsibility for emergency notification and transportation services for private schools within their jurisdiction. For example, the Pottsgrove School District plan will be modified to reflect that Pottsgrove will coordinate notification and transportation services for private schools within its territory as a back-up only. (Cunnington, Tr. 12877). The Pottstown School District has taken the same position (Cunnington, Tr. 12884; Appl. Exh. E-57, pp. 6-7).

126. The Pottstown and Pottsgrove School Districts have discussed this matter with Montgomery County. They contended that the County, with its greater resources, would be better able to provide primary

notification and coordination of transportation for private schools. Accordingly, the Montgomery County OEP has agreed to assume primary responsibility for emergency notification and coordination of transportation for private schools within those districts (Bigelow, Tr. 14259-63; Cunnington, Tr. 12877, 12890-91). This is consistent with the requirements of NUREG-0654 (Cunnington, Tr. 13710-11). If the plans finally adopted utilize this approach, Montgomery County has sufficient resources to fulfill this responsibility (Bigelow, Tr. 14262-63).

127. In Chester County, the planning task force in operation in the Owen J. Roberts School District has requested that responsibility for private schools within its district be eliminated from its plan (Cunnington, Tr. 12886, 12892). Chester County has modified the county plan to state that the transportation requirements for private schools in that district will be satisfied as unmet needs passed onto the county (Cunnington, Tr. 12886-87; Appl. Exh. E-2, Annex N, Appendix 1).

128. Similarly, the Phoenixville School District does not have sufficient resources under contract to provide emergency transportation for all public, private and parochial school students in the district and has transmitted an unmet need for transportation to the county, which is addressed in the Chester County plan (Cunnington, Tr. 12889-90).

129. Ultimately, PEMA sees no obstacle to resolving any unmet need for buses and drivers to evacuate school children (Hippert, Tr. 19577-78).

Reserve Buses

130. As represented by Appendix Q-1 of the Montgomery County plan, overall bus and van requirements in that county amount to 478 vehicles

(Bigelow, Tr. 14127; Appl. Ex. E-3, p. Q-1-1). This number is conservative in that the school population calculation of need was based upon total enrollment and did not account for absentees. Students who drive to school were also included in the total enrollment (Bigelow, Tr. 14129, 14235).

131. Based upon current survey information and known unmet needs, there are sufficient transportation resources within Montgomery County to meet all evacuation needs in a single lift (Bigelow, Tr. 14127, 14191; Hippert, ff. Tr. 19498 at p. 11). PEMA sees no obstacle to resolving any unmet need for buses and drivers to evacuate school children (Hippert, Tr. 19577-78).

132. The 49 buses and vans designated as a reserve in the Montgomery County plan, which have been reported to PEMA as an unmet need, represent an extra reserve constituting ten percent of overall needs. It does not represent any actual unmet need for transportation in Montgomery County (Bigelow, Tr. 14127, 14192, 14338; Hippert, Tr. 19546-47).

133. Montgomery County has a ready reserve of buses and drivers built into its plan inasmuch as it calls for the use of less than half of the available bus resources and between only 20 to 25 percent of the approximately 1,225 available drivers outside the Limerick EPZ. That pool of drivers will be sufficient. Nonetheless, Montgomery County intends to obtain an additional reserve which could provide further back-up capability (Bigelow, Tr. 14269-70, 14297-99; Bradshaw, ff. Tr. 12761 at p. 23; Cunnington, Tr. 12991, 13629).

134. The unmet need for 19 coach buses reported to PEMA (Appl. Exh. E-3, p. Q-1-1) does not relate to evacuation of school students. These

buses would be used to evacuate persons from the geriatric center or other persons requiring special assistance (Bigelow, Tr. 14331-32).

135. Thirty-seven buses from the Southeastern Pennsylvania Transportation Authority ("SEPTA") Frontier Division are designated in the Montgomery County plan only as a reserve (Bradshaw, Tr. 13145; Appl. Exh. E-3, pp. I-2-12, I-3-14). Other existing reserves are listed in Annex I, Appendix I-2, e.g., Ashbourne Transportation, Inc. (Bigelow, Tr. 14338; Appl. Exh. E-3, p. I-2-5). Buses and drivers which would be furnished by SEPTA upon request to Montgomery County in an emergency would logically be supplied from the buses stationed at the Frontier Division, in Norristown, Montgomery County, but SEPTA has depots all across five counties in Southeastern Pennsylvania and buses could be supplied from any of those locations (Wert, Tr. 16574-75).

Chester County

136. Chester County also surveyed potential bus providers and is seeking to enter into letters of agreement for the provision of buses in the event of an emergency, including an emergency at Limerick (Campbell (Admitted Contentions), ff. Tr. 19852 at p. 2).

137. Initially, Chester County reported an unmet need of 134 buses to PEMA, including a total of 80 buses necessary to evacuate school children (Campbell, Tr. 19874, 19980; Hippert, ff. Tr. 19498 at pp. 10-11; Appl. Exh. E-2, pp. N-3-1, N-3-2). A total of 545 buses for use in an emergency has been identified (Campbell, Tr. 19981).

138. Thus far, Chester County has obtained six written agreements with bus providers for approximately 100 buses. The bus agreements are based upon a transportation inventory form which states the type of vehicle, its passenger capacity, radio equipment and usual location

(Campbell, Tr. 19860). A driver would be provided with each bus (Campbell, Tr. 19861). Verbal agreements exist for an additional 18 buses. The number of buses for which written commitments have not yet been received has been submitted to PEMA as an unmet need (Campbell (Admitted Contentions), ff. Tr. 19852 at p. 2 (as amended), Tr. 19981, 20085; Hippert, ff. Tr. 19498 at pp. 10-11; Bradshaw, Tr. 12920; LEA Exhs. E-63 to E-66).

139. The Chester County DES is continuing efforts to obtain written agreements with the balance of bus providers located within or serving Chester County so that, ultimately, all potential providers will be under agreement (Campbell, Tr. 19866, 20027). There has been no indication that these commitments will not ultimately be reduced to writing (Bradshaw, Tr. 12922).

140. At this time, Chester and Montgomery Counties are negotiating an agreement with SEPTA to provide buses in the event of an emergency (Wert, Tr. 16608). SEPTA has a total of approximately 1,500 buses and 4,000 employees who are drivers or licensed to drive buses (Wert, Tr. 16611).

141. A resolution passed by the SEPTA Board on January 23, 1985 authorizes the SEPTA General Manager to enter into an agreement with Chester County to provide buses to the extent available during any emergency or exercise related to emergency preparedness, including an emergency at Limerick. As such, it constitutes an agreement by the SEPTA Board subject to the approval of the SEPTA General Manager and General Counsel (Campbell, Tr. 20071-72; Commonwealth Exh. E-12).

142. If called upon to provide buses to assist in an emergency that threatened the public safety, SEPTA has indicated that it would

cooperate even in the absence of a formal written agreement (Wert, Tr. 16608-09). Chester County and PEMA are confident that SEPTA would provide buses under those circumstances (Campbell, Tr. 19982-83; Thompson, Tr. 18818; Hippert, Tr. 19590).

143. The Deputy General Manager of SEPTA, Robert C. Wert, testified that SEPTA cannot commit in advance to furnish a specific number of buses that would be available at any given time, but that it is highly improbable that SEPTA could not furnish some buses (Wert, Tr. 16562, 16624). At any given time, about 300 buses are out of service for State inspection or routine maintenance (Wert, Tr. 16625). Presumably, those buses could be furnished promptly upon request in an emergency. Additionally, during non-peak daytime hours, about one-fourth to one-third of the operating buses would not be in service and would be provided as they became available (Wert, Tr. 16577-78, 16632-34).

144. Mr. Wert also testified that although SEPTA, as a public utility under Pennsylvania law, is required to provide services along certain routes, it would defer to the judgment of elected officials at the time of an emergency that the need for buses for an evacuation was more pressing than service along their normal routes (Wert, Tr. 16592).

145. If efforts to reach an agreement for the provision of SEPTA buses should fail, procedures are being developed by PEMA and PennDOT to implement the Governor's authority to commandeer buses, including SEPTA buses, in the event of an emergency (Hippert, ff. Tr. 19498 at p. 11-12).

146. With regard to the availability of drivers, the counties intend to request SEPTA drivers only as volunteers and would not rely on any existing contractual obligations (Cunnington and Bradshaw, Tr.

17024-25). In the opinion of the SEPTA Deputy General Manager, most SEPTA drivers would want to assist in an emergency (Wert, Tr. 16610). Chester County has indicated that execution of an agreement by SEPTA management to provide buses in an emergency would be sufficient assurance that drivers would be available (Thompson, Tr. 18814-15, 18820-21, 18824).

147. The number of buses previously reported to PEMA as an unmet need by Chester County now constitutes a request for reserve capacity to the extent those buses are presently available to Chester County by way of written agreements (Campbell, Tr. 19874).

148. If Chester County were to contact the providers who have not yet given written or verbal assurances, it would expect to receive buses in response to an emergency request (Campbell, Tr. 19982-83; Thompson, Tr. 18818). Such companies have previously placed their buses on stand-by for service upon request without prior verbal or written agreements (Campbell, Tr. 19983). In fact, in one other potential evacuation, Chester County requested buses, which were made available although they were not actually needed (Thompson, Tr. 18851).

149. Moreover, if for some unanticipated reason buses were unavailable by way of agreement, the Governor is empowered under Section 7301(f)(4) of P.L. 1332 to commandeer or utilize buses or any other private property necessary to cope with an emergency (Thompson, Tr. 18853; Hippert, ff. Tr. 19498 at p. 10, Tr. 19589).

150. In everyday circumstances, even absent activation of emergency networks, surrounding counties provide various forms of assistance upon request. Chester County is confident that adjacent counties would therefore provide buses in response to a request for help (Campbell, Tr.

19983-84). Lancaster County, for example, is a risk county for both the Three Mile Island and Peach Bottom facilities. There would be no difficulty in obtaining buses from Lancaster County available under its plan (Campbell, Tr. 19984). Buses could also be obtained from Delaware County and potentially from New Castle County, Delaware and Cecil County, Maryland (Campbell, Tr. 19984-85; Thompson, Tr. 18852-53).

Specific School District Needs

151. A number of school district superintendents testified as to the transportation needs of their districts and the availability of resources to satisfy those needs. The evidence indicates that adequate transportation resources are available within the three risk counties to evacuate all students from the EPZ in one lift. Many school districts have sufficient resources of their own or under contract to evacuate their students. Dr. Thomas Persing, Superintendent of the Upper Perkiomen School District, Dr. Royden Price, Superintendent of the Souderton Area School District, and Dr. Laird Warner, Superintendent of the Methacton School District testified that their schools have no unmet transportation needs and can evacuate their students in a single lift (Persing, Tr. 14784, 14850-51; Warner, Tr. 15658; Price, Tr. 15438-39, 15441; Appl. Exh. E-55, p. A3-14; Appl. Exh. E-59, p. A-3-1).

152. To evacuate its only school within the EPZ, the Upper Perkiomen School District would at most need only six or seven of the 31 buses it presently utilizes under contract with the Levy Bus Company. Mr. Levy has assured school district officials that his buses and drivers will be available if needed for an emergency evacuation (Persing, Tr. 14784, 14795-96, 14799, 14850-52; Appl. Exh. E-3, p. I-3-13). Further, the contract between the Upper Perkiomen School District and the Levy Bus

Company states without qualification or reservation that buses will be furnished upon request. Accordingly, if it were necessary to transport students in the event of an emergency at Limerick, there is no question that Levy Bus Company would supply the necessary transportation (Persing, Tr. 14852-53).

153. Several school district superintendents indicated they have an unmet need for buses. Specifically, Dr. Feich of the Pottstown School District testified that his district has an unmet transportation need of 32 buses and drivers as reflected in its draft plan (Feich, Tr. 14940; Appl. Exh. E-57, p. A-3-23). To ameliorate this problem, time permitting, it is the intention of the Pottstown School District to effectuate an early dismissal of its students prior to the declaration of a general emergency at Limerick (Feich, Tr. 14934).

154. Early dismissal aside, Dr. Feich was advised by Montgomery County that almost double the number of buses and drivers needed to evacuate his district would be available in an actual emergency (Feich, Tr. 14952-53). Dr. Feich acknowledged that there are sufficient buses and drivers available to Montgomery County to satisfy any unmet needs for buses passed on by the Pottstown School District (Feich, Tr. 14993; Appl. Exh. E-3, p. Q-1).

155. Dr. Robert D. Murray, Superintendent of the Phoenixville Area School District, testified that the unmet needs for the Phoenixville School District are accurately stated in Annex N of the Chester County plan as 17 buses (Murray, Tr. 15066; Appl. Exh. E-2, p. N-3-1). The Phoenixville School District contracts with the Gross Bus Company for transportation for its schools. That company has sufficient resources

to provide for the needs of the Phoenixville School District (Murray, Tr. 15040-41).

156. Dr. Murray's concerns would be satisfied if he received a letter from the Gross Bus Company assuring full cooperation in the provision of buses and drivers in the event of a radiological emergency (Murray, Tr. 15101-02, 15155). Nonetheless, the contract between the Phoenixville School District and the Gross Bus Company already provides that buses will be furnished upon request, including any kind of emergency (Murray, Tr. 15102-03).

157. Dr. Welliver, Superintendent of the Spring-Ford School District, indicated that the total unmet need for buses to evacuate school children from public and private schools within his district in a radiological emergency varies between 30 and 33 buses, depending upon enrollments (Welliver, Tr. 15521). Discussions between Dr. Welliver and a representative of the Custer Bus Company, the only contractor of significance providing transportation for that district, indicate that the contractor would provide the necessary buses in a radiological emergency (Welliver, Tr. 15522).

158. Dr. Roy C. Claypool, Superintendent of the Owen J. Roberts School District, stated that his district requires about 55 buses to evacuate its enrollment of approximately 3,300 students in a single lift (Claypool, Tr. 15854, 15863). Currently, 43 buses are available to the Owen J. Roberts School District under contract with the Gross Bus Company (Claypool, Tr. 15863). Nonetheless, the Owen J. Roberts School District has reported an unmet need of 25 vehicles (Claypool, Tr. 15874; Appl. Exh. E-2, p. N-3-1).

159. Clearly, the reported unmet need for 25 vehicles by the Owen J. Roberts School District is overstated (Cunnington, Tr. 16941). Because of plans to station buses at the main campus at the alert stage, more than 40 buses would likely be available. Additionally, the first five or six drafts of that district's plan indicated an unmet need of only 15 buses (Cunnington, Tr. 16941-42).

School District Bus Providers
from Outside the EPZ

160. The statement of unmet needs by the school superintendents discussed above is offset by the testimony of the school superintendents whose districts would be providing buses to satisfy the unmet needs of the risk school districts in the event of an emergency. For example, Dr. Bruce W. Kowalski, Superintendent of the Wissahickon School District, testified that his district had entered into an agreement with Montgomery County to provide buses and drivers to the maximum extent possible in an emergency. In doing so, the Wissahickon Board of Education acted upon an absolute commitment and unanimous consensus that the property of the school district would be made available to Montgomery County residents to transport them to safety in times of disaster (Kowalski, Tr. 16155, 16157-59).

161. Dr. Thomas Davis, Superintendent of Schools for the Springfield School District, and Dr. Clare G. Brown, Jr., Superintendent of Schools for the Upper Dublin School District, both testified that their districts have entered into written agreements with Montgomery County for the provision of buses and drivers to the maximum extent possible in the event of an emergency (Brown, Tr. 16462, 16465-66; Davis, Tr. 16644, 16646-47; LEA Exh. E-14). Even in the absence of a formal written

agreement, the Upper Dublin School District would provide transportation resources to another school district to assist in an evacuation (Brown, Tr. 16487).

162. As with all other providers, information as to the source and number of buses and drivers which could be made available from bus providers upon request were compiled from bus provider survey forms filled out and verified by the private bus providers or transportation agent of a public school district who had direct knowledge of the number and kinds of buses available, their routes and schedules, and the number and availability of drivers (e.g., Kowalski, Tr. 16171, 16189-92; Appl. Exh. E-75; Pugh, Tr. 16372; Appl. Exh. E-83; Starkey, Tr. 16422; Appl. Exh. E-86; Brown, Tr. 16467-68; Appl. Exh. E-87; Davis, Tr. 16668-69, 16676; Appl. Exh. E-90; Cunnington, Tr. 16952-53). The Montgomery County plan accurately depicts this information (e.g., Kowalski, Tr. 16171; Brown, Tr. 16481; Appl. Exh. E-3, Annex I, Appendix I-2, Tab 3), except to the extent the plan understates available resources (Davis, Tr. 16671-73; Appl. Exh. E-3, p. I-2-13).

163. Subsequently, the Montgomery County OEP has requested the providers to review this information and make appropriate changes (Kowalski, Tr. 16192-94; Appl. Exh. E-76; Pugh, Tr. 16375, Appl. Exh. E-84; Starkey, Tr. 16422, Appl. Exh. E-99). Updates of the information will be conducted annually (Proposed Finding 95).

164. The school districts which operate their own buses have developed a highly sophisticated system in order to coordinate their transportation needs, which include transportation of children from private and parochial schools within ten miles of the school district boundary (Kowalski, Tr. 16195-97). The Board believes that the transportation

officers of the various school districts responsible for handling such complex and sophisticated operations would necessarily have sufficient working knowledge of their systems to determine a realistic but conservative number of buses which could be made available in the event of an emergency.

165. Even in the absence of letters of agreement, school districts would provide whatever resources they have available, including vehicles and drivers, upon request by a governmental agency. School superintendents and board members are sworn to uphold the constitution of the Commonwealth and its laws, and to serve the public of the entire Commonwealth, both within and without their county. As state officers, superintendents and board members feel strongly that they should make publicly financed facilities and resources of the school district available in an emergency (Kowalski, Tr. 16211; Pugh, Tr. 16383-84; Starkey, Tr. 16454; Brown, Tr. 16486-87, 16493; Davis, Tr. 16680-81).

166. Not a single superintendent of a school district outside the EPZ expressed any doubt that his district would furnish buses and drivers upon request during an emergency at Limerick and thereby honor the commitment in its letter of understanding (Kowalski, Tr. 16207; Davis, Tr. 16659, 16679).

167. In fact, a number of superintendents testified that they would consider delaying the opening or closing of schools in their district so that buses could be released to evacuate schools within the Limerick EPZ. This would be handled just like a snow delay (Kowalski, Tr. 16200, 16217-18; Davis, Tr. 16663). Inasmuch as school districts inside and outside the EPZ open and dismiss within a close range of times (Cunnington, Tr. 16954-55), it is likely that school districts outside

the EPZ would not be called upon to provide buses at times of peak need within their own districts. Schools within the EPZ would be transporting their own students at that time pursuant to normal arrangements (Cunnington, Tr. 16956).

168. Public schools outside the Limerick EPZ which will be providing bus transportation for EPZ school districts routinely require bus drivers to be available as a matter of first priority to evacuate children in the case of snow or other emergency. There has never been a problem in obtaining drivers for such early dismissals, even if this involved obtaining substitute drivers (Kowalski, Tr. 16178-79; Murray, Tr. 15085-86, 15103-04; Cunnington, Tr. 12987).

169. Providers inside and outside the EPZ have far more drivers than buses/drivers committed by letter of agreement, e.g., 60 drivers in the Wissahickon School District to drive 20 buses (Kowalski, Tr. 16208). Similar comparisons can be made from the numbers of drivers and the lesser number of buses/drivers with tentative Limerick assignments in the Montgomery County plan (Appl. Exh. E-3, Annex I, App. I-2, Tab 3). Additionally, the great majority of drivers employed by providers outside the EPZ themselves reside outside the EPZ (Kowalski, Tr. 16208).

170. The estimates of buses and drivers which could be made available in an emergency to Montgomery County are additionally conservative because they are based upon a very short mobilization time, i.e., typically one hour or less (Appl. Exh. E-3, Annex I, App. I-2, Tab 3; Appl. Exhs. E-75, E-83, E-87). For example, the Wissahickon School District could make 20 buses available within half an hour, but probably could make its entire fleet of 60 buses available thereafter (Kowalski,

Tr. 16198-99). Total buses available to Montgomery County under optimal conditions would well exceed 1,000 (Bradshaw, Tr. 12970).

171. The contractual obligations of school bus drivers are irrelevant to the letters of understanding between bus providers and Montgomery County because drivers would be volunteers (Kowalski, Tr. 16201). It was on that basis that the school districts entered into letters of understanding with Montgomery County to provide buses to the maximum extent possible (Kowalski, Tr. 16202).

LEA-12

> The draft Montgomery, Chester, and Berks County RERP's and the School District REPP's are not capable of being implemented because there is not reasonable assurance that there will be sufficient numbers of teachers and staff required to stay at school during a radiological emergency if sheltering is recommended as a protective measure, or that there will be sufficient numbers of school staff available to evacuate with children in the event of a radiological emergency. Therefore, children are not adequately protected by the draft RERP's.

172. A comprehensive training program for school administrators, teachers and bus drivers has been offered to all public and private school personnel within the EPZ (Proposed Findings 227-249). With one exception discussed below, no school district has indicated that its staff would be unwilling or unable to accompany students and remain with them in the event of an evacuation for personal or other reasons (Bradshaw, ff. Tr. 12761 at p. 12).

173. At all training sessions, instructors have advised persons involved in emergency response activities that they should discuss family arrangements during an emergency. Members of families of school personnel remaining on duty during a radiological emergency are members of the general public and are evacuated on that basis. Arrangements for evacuation of the general public under the various plans provide reasonable assurance to school personnel that family members will be protected in the event of a radiological emergency (Welliver, Tr. 15575; Bradshaw, ff. Tr. 12761 at p. 12; Bradshaw and Wenger, Tr. 13059-62, 13103-05, 13727).

174. While a number of superintendents expressed the concerns of their teachers and staff regarding the welfare of their own families in the event of a radiological emergency, the Board believes that to a

large extent those concerns are truly unrealistic. A teacher's children who attend schools outside the EPZ would obviously not be sent back into the EPZ at the time of an emergency (Persing, Tr. 14839-45; Appl. Exh. E-61, Section V.B.3.c). The planning arrangements in operation under that particular school district plan would adequately protect the safety and welfare of children who attend other schools within the EPZ (Welliver, Tr. 15569).

175. Under Annex E, any protective action would be implemented for the entire 10-mile EPZ. If sheltering were implemented, it would impact all areas within the EPZ, including schools (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 11; Bradshaw, Tr. 16927). It would therefore be impractical, futile and possibly hazardous for teachers at schools within the EPZ to leave their assigned responsibilities to pick up their own children because other schools within the EPZ will be implementing the same protective action recommendations. Teachers would logically protect themselves by remaining in school and would not endanger their own children by taking them out of school (Proposed Findings 209-211).

176. If evacuation were ordered, a teacher's own children might be evacuated to a host facility by the time the teacher arrived (Bradshaw, Tr. 16927). Although some schools have reluctantly drafted pick-up procedures (Bradshaw and Cunnington, Tr. 17000-02), standard PEMA policy, as reflected in the school district and private school plans, discourages parents from attempting to pick up their children at school in the event of a radiological emergency (Bradshaw, Tr. 16927-28).

177. Because of their training, most persons participating in an emergency response develop procedures to assure the safety of their

families during emergency conditions. This pre-planning should allow individuals to fulfill their emergency duties with assurance that their families will be adequately protected. Accordingly, FEMA expects teachers to fulfill their responsibilities in protecting school children, irrespective of family concerns (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 9). That view is shared by Dr. Michael A. Worman, Deputy Secretary for Administration, Pennsylvania Department of Education, who testified as to his professional opinion as well as his personal experience during the Three Mile Island accident in 1979 (Proposed Findings 203-204). Among school superintendents to testify, for example, Dr. William A. Welliver, superintendent of the Spring-Ford Area School District (Welliver, Tr. 15493), stated that teachers would be available and of service to students during any kind of emergency (Welliver, Tr. 15576). Other superintendents agreed, based on a knowledge of their faculties and past experiences (Feich, Tr. 14978; Price, Tr. 15422-23, 15443).

178. The overview at training sessions covers planning considerations for the public at large, including the existence and scope of municipal and county plans. Training sessions will be supplemented by a public information brochure approved by county and Commonwealth planning officials (Bradshaw and Wenger, Tr. 13103-05). This information will provide teachers with assurance that they and their families, as part of the general public, will be protected in an emergency. The historical record indicates that the knowledge of such plans and procedures provides personnel with a sense of security which will enable them to better perform their responsibilities in the event of an actual emergency (Bradshaw, Tr. 13061-62).

179. Not all teachers would have family concerns. Many teachers do not live within the EPZ, are unmarried, or have a spouse or other member of the extended family who could take custody of their children in an emergency (Cunnington, Tr. 13728). Evidence as to the number of married teachers, teachers with families, and, in particular, single-parent teachers who reside within the EPZ, was extremely sketchy (e.g., Welliver, Tr. 15569-70; Warner, Tr. 15646-47). The Board believes that this information will be examined in greater detail by the schools as they proceed through the planning process. For example, the legitimate concerns of single-parent teachers and staff for the welfare of their children can be met by providing in the school district plans that they be dismissed at an early stage of an emergency (Feich, Tr. 14967).

180. In many districts, the issue of teacher availability has never even been raised with the superintendent (e.g., Persing, Tr. 14857). The Board believes that this general acceptance of emergency responsibilities fairly reflects the expected conduct of school personnel as reasonable adults certified by the Commonwealth for the instruction and custody of school children. The education and certification process for teachers, which includes a demonstration of their maturity in dealing with students, would necessarily equip teachers with an ability to deal with unusual or stressful situations (Greaser, Tr. 15381; Bradshaw, ff. Tr. 12761 at pp. 12-13). The Board therefore is reasonably assured that teachers will remain with children during an evacuation or sheltering until relieved.

Staff/Student Ratio
Appropriate for Supervision

181. The panel of witnesses from Applicant's consultant, who are experienced in emergency school planning in Pennsylvania, have not encountered a single school district whose representative stated that the district could not implement its radiological emergency response plan because of staffing considerations (Bradshaw, Tr. 13103).

182. During the evacuation of the junior and senior high schools in the Daniel Boone School District due to a hazardous material accident, there was every indication that administrative, faculty and staff personnel cooperated in effectuating the evacuation (Cunnington, Tr. 13053-54). School supervisors agree that people with responsibilities in an emergency situation do whatever is necessary to fulfill those responsibilities, including remaining with children past normal working hours (Feich, Tr. 14978-79; Welliver, Tr. 15539).

183. The history of emergency response shows a willingness by individuals to perform their duties. In fact, in many instances, more people than just those pre-designated as emergency workers volunteer their services. Individuals who have a clear understanding of their roles in an emergency plan do not abandon those roles in time of an emergency. The same historical record of individual and group behavior in a disaster demonstrates that community goals prevail over individual goals, and that community goals are balanced with family goals (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 7; Bradshaw, Tr. 13070, 13078).

184. There is no reason to believe that teachers, as reasonable adults certified by the Commonwealth for the instruction of school

children, would act differently or that human response in a radiological emergency would be any different (Price, Tr. 15443; Kinard, Tr. 20295-96; Bradshaw, Tr. 13070, 13095). Other than concerns raised by the representative of a teachers bargaining group, which FEMA did not regard as substantial, there is no evidence as to any specific instance, either in Pennsylvania or nationwide, where teachers have refused to assist in the protection of their students in the event of an emergency (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at pp. 8, 10).

185. Consequently, there is no need to conduct a survey of teachers regarding the performance of assigned roles in an emergency (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 12; Bradshaw, ff. Tr. 12761 at p. 13, Tr. 13071-72, 13738). Any survey as to the unwillingness or unavailability of a particular individual to respond to an actual emergency is inherently deficient because it cannot translate a present unwillingness to a point in the future when plans would have to be implemented. For this reason, the historical record of human responses in actual emergencies is more reliable (Cunnington, Tr. 13074-75; Bradshaw, Tr. 13738). As Dr. Welliver testified, such surveys are essentially uninterpretable (Welliver, Tr. 15576-77).

186. Thus, there is simply no correlation between an individual's expressed unwillingness prior to an emergency to perform assigned responsibilities and his availability at the time of an actual emergency. The historical record demonstrates that sufficient personnel are available to meet the initial demands of an emergency situation (Cunnington, Tr. 13102). In fact, in many instances, the major difficulty at the time of an emergency is to deal with an excess of volunteers (Cunnington, Tr. 13075).

187. The school district plans can be implemented with less than all school administrators, teachers and other adult staff (collectively "teachers"). For example, an appropriate ratio might be the equivalent of study hall or field trip supervision. There would be no difference in the appropriate teacher/student ratio for evacuation or sheltering scenarios. Therefore, school plans adequately account for human response and other factors which may unexpectedly reduce usual teacher/student ratios (Bradshaw, ff. Tr. 12761 at p. 13-14; Bradshaw and Cunnington, Tr. 13635-36).

188. Dr. Worman of the Pennsylvania Department of Education testified that a teacher/student ratio of 1:50 would be appropriate for supervision of school children in an emergency (Worman, Tr. 19353).

189. School superintendents in the EPZ generally testified that teacher/student ratios in an emergency could be significantly higher than for classroom instruction. This opinion was based, for example, upon their personal observation of school dismissals in inclement weather, during fire drills and evacuations during bomb scares, the procedures for which are similar to those that would be utilized in responding to a radiological emergency (Warner, Tr. 15689-91).

190. Various school superintendents stated that schools would have no problem sustaining an appropriate teacher/student ratio, even though the surveys by which they determined the number of teachers who would be available were seriously flawed. For example, the Pottstown School District would have a teacher/student ratio of 1:40 even if less than one-third of its staff responded to the emergency (Feich, Tr. 14958-60, 15000). Basing its calculations solely on the number of teachers who live outside the EPZ or do not have children, the Phoenixville School

District determined it could achieve a teacher/student ratio of 1:45 (Murray, Tr. 15118-19).

191. Similarly, the Superintendent of the Methacton School District stated that any unmet needs regarding the supervision of students in his district were not critical inasmuch as, even based upon staff survey results, a 1:46 teacher/student ratio exists, which he stated was more than adequate to safely supervise students in a radiological emergency. Teachers assigned study halls or cafeteria duty often supervise even more students (Warner, Tr. 15688-89).

192. Dr. Roy Claypool, superintendent of the Owen J. Roberts School District, contended that his district had an unmet need for teachers to supervise in an emergency. Dr. Claypool stated that 156 teachers would be needed to supervise the current enrollment of about 3,300 students in the event of a radiological emergency, i.e., a 1:20 ratio. This would leave his district approximately 91 staff short based on a teacher survey which he interpreted to show that approximately 60-65 staff would be willing to perform their assigned duties in a radiological emergency (Claypool, Tr. 15882-84, 15935).

193. Dr. Claypool was unaware of any other school district superintendent which agreed that such a low ratio of teachers to students would be necessary in an emergency (Claypool, Tr. 15935). He was unable to state any special consideration for the Owen J. Roberts School District which would require a lower ratio of teachers to students than that which would be satisfactory for other school districts (Claypool, Tr. 15936). More important, Dr. Claypool subsequently acknowledged that a teacher/student ratio of 1:35 would be adequate (Claypool, Tr. 15937). Ninety-four teachers would be sufficient to achieve a 1:35

teacher/student ratio, based on the current enrollment of about 3,300 students (Claypool, Tr. 15935). Even given Dr. Claypool's minimum estimate of 60 to 65 available staff members, a teacher/student ratio in the range of 1:50 to 1:55 would exist.

194. The Board believes, however, that far more teachers would in fact be available in an emergency than indicated by Dr. Claypool's interpretation of his school district's teacher survey because the survey was seriously flawed. Dr. Claypool did not personally administer the survey and his description of its results is far from clear. Apparently, an effort was made to survey the entire faculty of 208 teachers, but only 137 teachers (66%) responded. Dr. Claypool did not know if an effort had been made to obtain responses from the 71 teachers (34%) who did not respond (Claypool, Tr. 15932, 15944; LEA Exh. E-29, p. 3). Moreover, the survey instructions clearly indicated that signing the answer was optional, but Dr. Claypool inexplicably discounted unsigned answers, representing 40% of the 137 total responses, or about 55 teachers (Claypool, Tr. 15932-33; LEA Exh. E-29, p. 3; Appl. Exh. E-105). Accordingly, only about 82 of the 208 district faculty members were actually surveyed (137 responses minus 55 discounted) (LEA Exh. E-29, p. 3).

195. Given that only 82 teacher responses were considered, even a conservative interpretation of the number of surveyed faculty willing to accept assignments demonstrates that adequate staff will be available. Assuming the actual response to be representative of the entire faculty, the number of teachers available in an emergency would easily exceed the number required for Dr. Claypool's desired 1:35 teacher/student ratio (Proposed Findings 192-194).

196. The survey results are also ambiguous because of the survey's format, which asked teachers to check off a "yes" or "no" box expressing a willingness to accept two emergency assignments related to a student evacuation (Appl. Exh. E-105). The survey could therefore reasonably be interpreted, as did the president of the local Teachers Association, to provide a choice between possible assignments during an emergency (Claypool, Tr. 15933-35; Bollinger, Tr. 16123-24). Inasmuch as the total of 94 positive responses (38 willing to accompany students by bus in an evacuation and 56 willing to otherwise supervise students at a host facility) (LEA Exh. E-29, p. 3) exceeds the number of survey forms considered (82), the Board assumes that some teachers did check more than one answer. Since Dr. Claypool provided no breakdown or further explanation, for all the Board knows, all of the 82 teachers whose responses were considered agreed to accept an assignment of responsibilities in a radiological emergency.

197. The teacher survey at the Owen J. Roberts School District was also flawed because a prior survey (Appl. Exh. E-106) had been actively opposed by the local teachers' union. This opposition might well have affected responses in the second survey upon which the school district relied in determining unmet staff needs (Claypool, Tr. 15944-45). Finally, the teacher survey did not advise teachers that their performance of assigned responsibilities in the event of a radiological emergency was an important element to the successful implementation of the school district plan, nor did it reflect a school district policy encouraging participation (Appl. Exh. 105).

198. Despite the alleged teacher shortage, officials of the Owen J. Roberts School District would do everything humanly possible to get

teachers and staff to volunteer and to work towards an agreement or understanding with the teachers' union toward that end (Claypool, Tr. 15955). In the meantime, the number of staff identified in the Owen J. Roberts survey as unwilling to remain with students in the event of a radiological emergency has been passed onto Chester County as an unmet need (Bradshaw, ff. Tr. 12761 at p. 13).

Effect of Collective Bargaining Agreements

199. In the event of an actual emergency, teachers would not abandon students or fail to provide proper supervision simply because they are not required to do so under their collective bargaining agreements (Murray, Tr. 15119, 15132). There are many situations in which teachers act as volunteers after school dismissal for particular activities which are not covered by collective bargaining agreements, including the provision of emergency transportation of students for personal or medical reasons (Murray, Tr. 15110-11, 15132; Greaser, Tr. 15380-81).

200. The collective bargaining agreement for the Owen J. Roberts School District states that "[m]embers of the bargaining unit recognize that their professional responsibilities may extend beyond the delineated time period [of a seven hour school work day]" (Bollinger, Tr. 16141). While this provision might not be a basis to compel teachers to remain with students beyond normal dismissal time (Bollinger, Tr. 16144-45), the Board believes that it does constitute an acknowledgement by teachers that professional responsibility may dictate that they remain beyond normal school dismissal for the welfare of students.

201. The Board's belief was borne out by the testimony of Dr. Michael A. Worman, the Deputy Secretary for Administration, Pennsylvania Department of Education (Worman, ff. Tr. 19329 at p. 1). Dr. Worman

testified that there is no legal authority by which a collective bargaining agreement or local rules adopted pursuant to a collective bargaining agreement would override the provisions of an evacuation plan promulgated by a political subdivision pursuant to its obligations under P.L. 1332 (Worman, Tr. 19358). The broader implications of P.L. 1332 will be discussed at length below (Proposed Findings 396-398). A teacher's collective bargaining agreement would not preclude him or her from volunteering to perform assigned responsibilities in the event of a radiological emergency (Worman, Tr. 19351).

202. Each school district in Pennsylvania is legally empowered to adopt rules and regulations setting forth teacher responsibility during school evacuation, including the conduct of students to and from a host facility (Worman, ff. Tr. 19329 at p. 2, Tr. 19351).

203. In Dr. Worman's opinion, teachers could be expected to fulfill assigned responsibilities away from school buildings in a radiological emergency on the same basis as fire drills, real fire emergencies and other non-radiological emergencies (Worman, Tr. 19361). Even though those situations might not be specifically covered by collective bargaining agreements, they would entail a response by a teacher as a professional employee (Worman, Tr. 19364).

204. At the time of the Three Mile Island accident and ensuing events, teachers reported to school and performed their assigned responsibilities (Worman, Tr. 19354). Dr. Worman would expect other teaching professionals to act similarly in the event of an emergency (Worman, Tr. 19356).

Evacuation of Students to Host Facilities and Transfer to Mass Care Centers

205. As a matter of policy, PEMA now states that host school teachers should assume supervision of evacuated students to permit the risk school teachers to leave. However, if risk school districts prefer to arrange for their own teachers to remain with evacuated students, that is their prerogative (Hippert, Tr. 19558).

206. In the event of an actual emergency, students transported to a host facility would be transferred to a mass care center by 8:00 p.m. if not already picked up by their parents (Cunnington, Tr. 13107). Because schools dismiss no later than 3:00 p.m., an evacuation of school children to a host facility would occur at least five hours prior to the transfer of school children to a mass care center. Since that time is consistent with the time frame for an evacuation of the entire EPZ, only a very few students, if any, would have to be transferred to a mass care center and they could probably be supervised by a school administrator (Bradshaw, ff. Tr. 12761 at p. 24, Tr. 13109; Cunnington, Tr. 13645-47).

207. In any event, a number of faculty and staff members have indicated their willingness to evacuate with students and remain with them at host schools beyond ordinary dismissal times (Feich, Tr. 14979). There is no evidence that this particular responsibility creates any problem for risk school teachers.

Sheltering

208. Margaret A. Reilly, Chief, Division of Environmental Radiation, Bureau of Radiation Protection, Pennsylvania Department of Environmental Resources, testified that under Annex E, an appropriate structure for sheltering may be a residential, commercial or public building, i.e.,

any building which is reasonably winter-worthy with windows and doors closed (Reilly, ff. Tr. 19381 at p. 3; Hippert, ff. Tr. 19498 at p. 15; Bradshaw, ff. Tr. 12761 at pp. 14-15; Commonwealth Exh. 1, Appendix 12, Section 10.2.2.2). The absence of a basement does not render a building inadequate for sheltering (Reilly, Tr. 19386). Representatives of Energy Consultants have visited a number of school buildings within the Limerick EPZ and have found them all to be winter worthy (Cunnington, Tr. 16913).

209. There is no provision in 10 C.F.R. §50.47, NUREG-0654 or Annex E which requires an individualized evaluation of buildings to determine their adequacy for sheltering, nor has the Commonwealth undertaken any such evaluation for any other nuclear plant sites in Pennsylvania (Reilly, Tr. 19397-98; Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 11; Bradshaw, ff. Tr. 12761 at p. 14; Cunnington, Tr. 16913). If the Bureau of Radiation Protection were to undertake such evaluations, its ability to make protective action recommendations would not be enhanced because the individual protective value of a building is irrelevant. Protective action recommendations are based upon the dose projection for the entire populace rather than the occupants of any particular building. Evaluation of the protection afforded by structures within the EPZ will not make those buildings more suitable for sheltering or affect the choice of a sheltering option. (Reilly, Tr. 19398-99; Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 11; Bradshaw, ff. Tr. 12761 at p. 15, Tr. 13254). Protective action recommendations are based on the prognosis for the accident, time constraints and existing conditions (Reilly, Tr. 19382; Bradshaw, ff. Tr. 12761 at p. 15).

210. Sheltering as a protective action has the primary purpose of protecting an individual against the inhalation pathway rather than radiation shine. Inhalation pathway protection is measured in terms of the air exchange rate between the area outside and the area inside a building. Therefore, the air exchange rate is a factor of the air tightness of a building, not its construction material (Bradshaw, Tr. 13261). This understanding is consistent with Commonwealth guidance as well as protective action guidelines published by the Environmental Protection Agency for sheltering, neither of which refer to the protection factor of buildings as a consideration in recommending sheltering (Bradshaw, Tr. 13264).

211. In training school staff, instructors explain the circumstances under which sheltering would be the preferred protective action and provide instruction as to the procedures for implementing this option. Accordingly, school staff have the necessary information to be assured that sheltering, if implemented, provides the greatest level of protection for staff and students under the circumstances (Bradshaw, ff. Tr. 12761 at pp. 15-16; Proposed Findings 238, 242).

212. School district plans provide that students should be moved away from windows as part of the general direction to provide sheltering in those areas of the building which afford the greatest degree of comfort for students. In very warm weather, a classroom without shades could become quite hot if windows were closed and ventilation/air conditioning were turned off. This might prompt officials to shelter students on the shady side of the building, using a hallway, gymnasium or auditorium to increase comfort (Cunnington, Tr. 16913-14). Sheltering in hallway or away from windows is absolutely unrelated to any

radiological concern; students could be sheltered in any area of the building which is winter-worthy (Cunnington, Tr. 16914-15).

213. Contrary to an apparent assumption by some school officials, there is no reason why students would have to be sheltered together; they could be broken up into any number of groups, including their normal classroom assignments (Bradshaw and Cunnington, Tr. 16915).

214. Some school district superintendents have confused emergency planning concepts related to civil defense with those for fixed nuclear power plants. They wrongly believe that radiological considerations require sheltering in a basement away from areas with windows and exits and entrances (Persing, Tr. 14809; Feich, Tr. 14934-35, 14995-96, 15003-06; Murray, Tr. 15122). At least one instance of such misapprehension arose from misinformation provided by LEA's counsel (Persing, Tr. 14864-65). The Board believes that further coordination between school administrators and county or PEMA officials will clear up such a misunderstanding.

LEA-14(a)

> The School District RERP's and the Chester, Berks, and Montgomery County RERP's are deficient because there are inadequate provisions of units of dosimetry-KI for school bus drivers, teachers, or school staff who may be required to remain in the EPZ for prolonged periods of time or who may be required to make multiple trips into the EPZ in the event of a radiological emergency due to shortages of equipment and personnel.

One Lift Evacuation Principle

215. Having identified the necessary transportation resources, the basic concept of the risk county and school district plans is that school evacuation and evacuation of transportation-dependent individuals will be accomplished in a single lift. Accordingly, it is not

anticipated that any school bus driver, teacher or school staff would remain within or re-enter the EPZ in the event of an emergency (Hippert, ff. Tr. 19498 at p. 19; Bigelow, Tr. 14137-38, 14360; Reber (Admitted Contentions), ff. Tr. 19729 at p. 3; Campbell, Tr. 19995-96; Bradshaw, ff. Tr. 12761 at p. 18; Appl. Exhs. E-49 to E-61, Section II.G.3.c; Appl. Exh. E-53, p. 6114.4(f)).

216. Accordingly, there is no need to have dosimetry or potassium iodide ("KI") available for bus drivers, teachers or school staff. Dosimetry/KI are issued only to emergency workers, which would not include bus drivers or school staff accompanying evacuating school children (Hippert, ff. Tr. 19498 at p. 19-20; Campbell (Admitted Contentions), ff. Tr. 19852 at p. 9; Reber (Admitted Contentions), ff. Tr. 19729 at p. 3; Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 19).

217. It is the Commonwealth's policy for all fixed nuclear power plant facilities that the general population within the EPZ not be given dosimetry and that school staff be considered part of the general public (Hippert, Tr. 19619-20).

218. Bus drivers and teachers are not deemed to be emergency workers because, under the one-lift plan to evacuate the EPZ, they would not be requested to perform any task which would subject them to an exposure or dose commitment exceeding that for the general public, as distinguished from designated emergency workers (Bradshaw, Tr. 13167, 13281-82, 13333).

219. All vehicles which enter the EPZ for the purpose of evacuating school children or transportation dependent persons will first pass through a county transportation staging area (Bigelow, Tr. 14343-44;

Bradshaw, ff. Tr. 12761 at pp. 18-19; Appl. Exhs. E-1, p. I-1; E-2, p. I-1; E-3, p. I-1). If it were necessary for a driver to re-enter the EPZ for some unforeseen reason after the time frame for evacuating the general public, he would re-enter through a transportation staging area and be provided with dosimetry/KI. Chester and Montgomery Counties will retain a supply of dosimetry and KI at each transportation staging area. Appropriate instruction in the use of dosimetry/KI could be given quickly (Bigelow, Tr. 14138-39; Reber, Tr. 19822, 19835; Bradshaw, ff. Tr. 12761 at pp. 18-19, Tr. 13277-78, 13309, 13608; Appl. Exhs. E-2, p. M-3-3; E-3, p. M-3-9). The decision to administer KI would be made by the Commonwealth (Bigelow, Tr. 14139, 14284).

220. By agreement dated September 6, 1984, Applicant agreed to fund the procurement of dosimetry necessary to protect offsite emergency workers responding to a radiological emergency at Limerick (Appl. Exh. E-104). On that basis, the Commonwealth withdrew its previously admitted contention (Commonwealth-1) regarding availability of dosimetry.

221. Individuals who staff transportation staging areas are emergency workers qualified to instruct others in the use of dosimetry/KI. In addition, they would have radio communication with the county EOC to contact the radiological officer (Cunnington, Tr. 13704).

222. Under the county plans, a "unit" of dosimetry/KI includes two self-reading dosimeters, a thermoluminescent dosimeter and a 14-day supply of KI (Campbell (Admitted Contentions), ff. Tr. 19852 at p. 12; Appl. Exhs. E-2, p. M-3-3; E-3, p. M-3-9). The number of dosimetry/KI units available at each of the transportation staging areas represents a conservative estimate of potential needs (Bradshaw, ff. Tr. 12761 at p. 20; Cunnington, Tr. 13307-08, 13329). Accordingly, if it became

necessary for buses to re-enter the EPZ, adequate supplies of dosimetry and KI are available (Campbell, Tr. 20001; Bigelow, Tr. 14360-61).

223. Berks County does not distribute dosimetry/KI to transportation staging areas under its plan because, given the excessive number of available buses, there is not even a remote possibility that a multiple lift would be required. Berks County has 252 buses and drivers available to meet a total need of 97 buses for county schools and all other unmet transportation needs. Nonetheless, the Berks County EOC has an unassigned reserve of 100 units which could supply the transportation staging areas if necessary (Reber (Admitted Contentions), ff. Tr. 19729 at p. 3, Tr. 19821; Bradshaw, ff. Tr. 12761 at pp. 19-20, Tr. 13320; Appl. Exh. E-1, p. M-4-1).

224. Dosimetry/KI units at transportation areas are reserved for bus drivers and are not needed for emergency workers because supplies for emergency workers have been predistributed to the municipalities and emergency service organizations (Bigelow, Tr. 14361).

225. If a bus driver were required to re-enter the EPZ, the dosimetry issued the driver would also provide exposure indication for any other individuals on the bus. It is a common planning practice throughout the United States to assign dosimetry to a vehicle rather than to an individual (Bradshaw, ff. Tr. 12761 at p. 19, Tr. 13285). Any school children or staff on the bus would be treated as members of the general public with regard to dosimetry/KI supplies since they would not be s bjected to the same dose commitment as a driver making multiple runs (Bradshaw, Tr. 13287).

226. Adequate provisions exist in the plans for radio communication with the county EOC in the event a bus should break down en route (Cunnington, Tr. 13378).

LEA-14(b)

> The Chester, Berks, and Montgomery County School District RERP's fail to provide reasonable assurance that school bus drivers, teachers or other school staff are properly trained for radiological emergencies.

Training Availability

227. Although they are not considered emergency workers, training for school teachers, staff and bus drivers for response to a radiological accident has been and continues to be offered by Energy Consultants through the three county emergency management agencies (Hippert, ff. Tr. 19498 at p. 22; Bigelow, Tr. 14132; Reber (Admitted Contentions), ff. Tr. 19729 at p. 3; Campbell (Admitted Contentions), ff. Tr. 19852 at p. 5; Bradshaw, ff. Tr. 12761 at p. 20-21; Appl. Exhs. E-64, E-65, E-66, E-76, E-99).

228. Training in the form of general orientation for administrators, teachers and school staff offered by Energy Consultants includes a general description of nuclear power plant operations, background information on radiation and its biological effects, an overview of the emergency planning process, planning concepts for schools, and a description of assigned responsibilities outlined in the school district plans. More extensive training for school staff and bus drivers regarding risk of exposure to radiation and proper use of any necessary equipment is unnecessary (Bradshaw, Tr. 13015; Wenger, Tr. 13087-88; Appl. Exh. E-64, E-65, E-66). The general orientation for teachers also includes a description of their responsibilities during sheltering and

instructions on sheltering procedures. This information has been provided in all training sessions (Wenger, Tr. 13015-16, 13098; Appl. Exh. E-65, pp. 14, 23-25).

229. Although some witnesses quibbled over whether teachers had actually received "training" as opposed to an "orientation," the Board is satisfied upon reviewing the training materials and testimony that the information provided teachers constitutes appropriate preparation for assignments in an emergency. Whatever its label, teachers were fully informed of the content of their plans and general operating procedures (Wenger, Tr. 13088-89).

230. Annual retraining of school staff will be provided even though they are professionals and the procedures they would implement in an emergency are very basic (Bigelow, Tr. 14364; Campbell, Tr. 19996; Appl. Exh. E-1, p. R-3; Appl. Exh. E-2, p. R-2; Appl. Exh. E-3, p. R-3). Given the expenditures by Applicant to date in providing counties, municipalities, school districts, health care institutions and fire companies with needed equipment, and its desire for a 40-year operating license for Limerick, there should be no problem in obtaining a long-term commitment to train personnel (Bigelow, Tr. 14279; Campbell, Tr. 19962-63).

231. The training sessions offered by Energy Consultants are based upon lesson plans whose content has been determined, reviewed and approved by Commonwealth and county emergency planning authorities. The lesson plans are consistent with the policies and procedures of those bodies (Bradshaw and Wenger, Tr. 13356, 13359-60; Appl. Exhs. E-64, E-65, E-66).

232. County planning officials evaluated the adequacy of the lesson plans and attended the training programs offered by Energy Consultants to monitor the quality of that training. They were satisfied that the training provided by Energy Consultants to school administrators, faculty and bus drivers provides an adequate understanding of their roles and responsibilities under their respective plans (Bigelow, Tr. 14275; Reber, Tr. 19746-47, 19796-97; Campbell, Tr. 19889-90).

233. FEMA found that the lesson plans utilized by Energy Consultants for school administrators, school teachers and staff, and bus drivers are comprehensive in nature and adequately cover the various aspects of a nuclear power plant emergency response (Asher and Kinard (Update), ff. Tr. 20150 at p. 1).

234. Given the limited responsibilities of teachers in accompanying students during an evacuation, there is no need to conduct post-training surveys to evaluate the effectiveness of the program. Neither NUREG-0654 nor the provisions of 10 C.F.R. §50.47 require post-training survey of teachers and school staff. FEMA sees no special considerations requiring a post-training survey of teachers (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 12; Bradshaw, ff. Tr. 12761 at p. 14).

235. Nor is there a need to conduct special drills for evacuation since this merely involves escorting students out of school buildings, which occurs normally during fire drills, and transporting them by bus to other locations. Staff supervision of students during an evacuation would therefore be similar to supervision of large student groups during any number of other outside activities and would not be enhanced by drills (Bradshaw, ff. Tr. 12761 at p. 14). Nonetheless, Energy

Consultants has been and continues to be willing to provide assistance to school districts in conducting sheltering/evacuation drills (Bradshaw and Cunnington, Tr. 16917-18).

Assigned Responsibilities for Which Teachers Have Been Trained

236. The basic responsibilities of assigned school teachers and staff to accompany evacuated students and remain with them at host schools until relieved is described in each school district plan. No special training for these elementary responsibility is necessary because teachers routinely supervise students in similar situations (Bradshaw, ff. Tr. 12761 at p. 11; Appl. Exhs. E-49 to E-61, Section V.D.2.d.; Appl. Exh. E-53, pp. 6114.4(f), 6114.4(g)). School districts periodically implement early dismissal procedures comparable to the evacuation procedures for a radiological emergency. Those situations include boiler breakdowns, gas leaks, bomb threats, or severe weather (Persing, Tr. 14831; Feich, Tr. 14973). Because emergency and routine responsibilities are comparable, pre-identification of teacher volunteers is not required to make the plans workable, nor is it a requirement of NUREG-0654 (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 10; Kinard, Tr. 20298).

237. Nonetheless, training for teachers and staff has been provided to familiarize them with nuclear plant operations, radiation hazards and related emergency planning concepts. Training is available on an ongoing basis for school staff assigned to perform this function, as explained in the county and school district plans. (Bradshaw, ff. Tr. 12761 at p. 11; Appl. Exhs. E-1, p. R-3; E-2, p. R-2; E-3, p. R-3; E-49 to E-61, Section III). As a result of this training, school staff will

be informed about the likely risks involved in an actual emergency and prepared to perform their limited escort function without unrealistic fears or apprehension (Bradshaw, ff. Tr. 12761 at pp. 11-12).

238. In accordance with emergency planning principles of assigning individuals roles with which they are already familiar, teacher responsibilities outlined in the school district plans are essentially extensions of similar activities teachers perform on a day-to-day basis. Escorting students to different locations, taking attendance and keeping a count of students, monitoring and supervising students in groups of various size, and closing windows and doors are responsibilities teachers are already trained to perform or for which no training is required. In an emergency, they can be reasonably expected to continue to perform those same basic functions for the same or larger class sizes if necessary. The training provided teachers demonstrates how those routine functions would be performed in the context of a postulated radiological emergency at Limerick (Cunnington, Tr. 13020-24; Bradshaw, Tr. 13730).

239. Similarly, the procedure for evacuating students from schools is simply to escort them to buses as is done for daily dismissal, attendance at extracurricular events, monthly fire drills and annual or semi-annual bus drills. This requires no special training (Persing, Tr. 14823, 14831; Bradshaw, Tr. 13011-12; Cunnington, Tr. 13023, 13638).

240. There is no need to train school staff to deal with stress which might be experienced by school children in a radiological emergency. Stressful conditions exist in other nonradiological emergencies, such as evacuation for a fire or bomb threat (Campbell (Admitted Contentions), ff. Tr. 19852 at p. 6). To the extent students might look to teachers for guidance and emotional support in a radiological emergency,

they likewise turn to teachers for guidance and support on a daily basis. Teachers are thus prepared to handle such situations by reason of their general background and experience in the teaching profession. The training provided by Energy Consultants merely applies this principle of common sense in the context of radiological planning (Bradshaw, ff. Tr. 12761 at p. 22, Tr. 13045).

241. As of the time of the hearing, training had been received in six school districts inside the EPZ: Boyertown School District, Owen J. Roberts School District, Phoenixville School District, Perkiomen Valley School District, Pottstown School District, and Upper Perkiomen School District (Wenger, Tr. 13086). No school district has rejected training. Those districts which have postponed training have not stated any unwillingness to schedule training in the future (Bradshaw, Tr. 13686). The training offered through the cooperative program between Energy Consultants and the counties is proceeding at a reasonable pace to train sufficient people to fulfill emergency assignments (Campbell, Tr. 20043-44).

242. There is no need to instruct school staff in the adequacy of school buildings for sheltering because individualized decisions on sheltering for particular schools will not be made (Proposed Findings 209-210). Nonetheless, information regarding sheltering is contained in training lesson plans for administrators, teachers and bus drivers (Appl. Exh. E-64, p. 31; Appl. Exh. E-65, pp. 23-25; Appl. Exh. E-66, pp. 35-39).

243. School maintenance and security personnel routinely adjust the operation of a school building's heating and ventilating systems under

normal circumstances and could easily do so in the event of a radiological emergency requiring sheltering (Cunnington, Tr. 13028-30).

244. No teacher who received training has informed his school superintendent that it was inadequate or that he did not understand his assigned responsibilities in the event of a radiological emergency (Persing, Tr. 14857; Murray, Tr. 15078; Claypool, Tr. 15893). Similarly, school officials have not expressed any concerns to county planners as to the adequacy of the training sessions (Bigelow, Tr. 14277-78).

Bus Driver Training

245. When county representatives discussed with bus providers the number of buses and drivers which could be made available in an actual emergency, including Limerick, they advised providers that a training program would be offered to address any driver's concerns. This information was also contained in the letter seeking updated survey information (Bigelow, Tr. 14141, 14189-90; Appl. Exhs. E-76, E-99).

246. Accordingly, training has been offered to school bus drivers regarding their assigned responsibilities in the event of a radiological emergency and will continue to be offered on an ongoing basis (Bradshaw, Tr. 13289-90; Bigelow, Tr. 14139-40).

247. The training program for bus drivers offers a general orientation and overview of radiation principles, emergency management principles, susceptibility of children to radiation and additional background information. No other, special training is required (Bradshaw, Tr. 13289, 13369-70).

248. Training does not include route assignments. Buses would be given their assignment to evacuate a particular facility or segment of the population at the time of an actual emergency (Bigelow, Tr.

14128-29). If drivers are unfamiliar with the assigned routes, they will be provided with strip maps (Hippert, ff. Tr. 19498 at p. 23; Cunnington, Tr. 13745-46). It is standard practice throughout the Commonwealth for all five nuclear power plants to issue strip maps to bus drivers unfamiliar with assigned routes (Hippert, Tr. 19621). The use of such maps will be sufficient to provide drivers with directions to their assigned locations (Kinard, Tr. 20300).

249. In a typical training session for bus drivers, one or two drivers would indicate concern about their family arrangements (Bradshaw and Cunnington, Tr. 16939-40). Accordingly, their training included a discussion of family arrangements which should be considered in advance of an emergency. The instructor discussed the overall planning process by which the municipal and county plans make arrangements for the public at large, including the family of any driver residing in the EPZ (Bradshaw, Tr. 13153).

LEA-15

> The Chester and Montgomery County RERP's and the School District RERP's are not capable of being implemented because the provisions made to provide bus drivers who are committed to being available during a radiological emergency, or even during preliminary stages of alert are inadequate.

250. The basic responsibilities and procedures regarding bus driver assignments in a radiological emergency are described in the bus driver training program (Appl. Exh. E-64). The training program offered to bus drivers provides general information on nuclear technology and terminology, radiation measurement and effects, emergency planning and response operations. This encourages drivers to plan ahead for emergency contingencies in order to eliminate conflicts between volunteer and

family responsibilities (Bradshaw, ff. Tr. 12761 at pp. 24-25; Appl. Exh. E-64). Also, training eliminates any misconceptions held by drivers as to the nature of their emergency responsibilities or the risks they are likely to face in carrying out their assignments (Proposed Findings 227-229, 245-249).

251. Because the basic principle governing evacuation within the EPZ is that all transportation-dependent individuals will be evacuated in a single lift (Proposed Finding 215), bus drivers will not be subjected to greater radiological hazards than those facing the general public (Proposed Finding 216-218). Accordingly, bus drivers are instructed in training sessions that they would not be expected to do more than drive a bus as they do in carrying out routine school assignments (Bigelow, Tr. 14294; Bradshaw, Tr. 13730; Appl. Exh. E-64, pp. 30-32).

252. In discussing arrangements for obtaining additional buses with non-EPZ school districts and private bus companies, Montgomery and Chester County planning officials had a clear understanding, except when expressly stated to the contrary, that a commitment by the provider of its transportation resources included a driver for each bus. The counties explained to each provider why buses and drivers were being requested and, obviously, the providers understood that it would be meaningless to provide a bus without a driver (Proposed Findings 86-95, 136-146). Each agreement expressly states the provider's commitment to furnish a driver for every bus, based upon personal knowledge of resources and manpower (Thompson, Tr. 18813; Campbell, Tr. 19861, 20033; Bigelow, Tr. 14126; e.g., LEA Exhs. E-4, E-63).

253. As demonstrated above, both Montgomery and Chester Counties have conservatively estimated the number of buses and drivers available

under commitments from bus providers and will ultimately have commitments which far exceed any possible unmet need. Nonetheless, pools of back-up drivers are also being formed (Proposed Finding 133). Typically, bus providers have far more drivers than buses (Kowalski, Tr. 16208-09), and certainly more than the number conservatively estimated by providers under their letters of agreement with the counties (Proposed Finding 169). Also, many drivers will not have family concerns (Proposed Finding 179). The Montgomery County plan will utilize only 20 to 25 percent of all available drivers employed by providers outside the EPZ. That pool will suffice (Bigelow, Tr. 14270, 14298-99).

254. The agreements between the three county emergency planning agencies and bus companies are general and do not specify buses or drivers for a particular use or assignment. Advance assignments may or may not be made in practice (Bradshaw, ff. Tr. 12761 at p. 23; Appl. Exh. E-1, Annex T, App. T-23 to T-27). The same procedure of assigning buses and drivers at the time of an actual emergency has been used by the counties previously. Bus companies have provided buses and drivers promptly upon request on those occasions. Accordingly, drivers willing to perform their assignments have been obtained under those ad hoc procedures in the past (Bradshaw, ff. Tr. 12761 at p. 24).

255. In Pennsylvania, the Governor has authority to declare a state of disaster emergency and to alter any Commonwealth code or regulation necessary to respond to the emergency. The Pennsylvania Vehicle Code would be covered by this authority. Accordingly, the Governor could modify the Code to permit other than certified bus drivers to drive buses (Bradshaw, Tr. 13147-48). The Limerick emergency plans do not,

however, rely upon that authority with regard to transportation arrangements (Bradshaw, Tr. 13150-51).

256. The evidence in the record of this proceeding supports the historic record that drivers will perform assigned functions. Several school district superintendents testified that they have required buses for early school dismissal without prior notification a number of times each year and that they had experienced no difficulty in obtaining a full complement of buses and drivers (Persing, Tr. 14854; Feich, Tr. 14997; Murray, Tr. 15085-86, 15103-04; Price, Tr. 15439-40; Welliver, Tr. 15554-55, 15585-86; Warner, Tr. 15659-61).

257. Not a single bus driver has refused to drive a bus during emergency circumstances, notwithstanding that drivers often face very hazardous conditions while driving in inclement weather (Kowalski, Tr. 16206-07). The consultants who provided training for school administrators, teachers and staff are unaware of any instance in which trained individuals stated an unwillingness to participate in response to an actual radiological emergency (Bradshaw and Cunnington, Tr. 13046-47). Bus drivers are particularly capable and caring individuals. They especially care about children and would therefore want to serve in an emergency if the safety of school children were threatened (Kowalski, Tr. 16210, 16216).

258. Experience during other disaster emergencies, such as the Three Mile Island accident in 1979, an accidental chemical release in a Union Carbide Plant in 1982, and an incident at the Ginna Nuclear Power Plant, demonstrate that bus drivers will respond when called upon in an actual emergency (Bradshaw and Cunnington, Tr. 13647-49, 13716, 13723-24; Bigelow, Tr. 14293).

259. A number of the school superintendents had surveyed their drivers to determine their willingness to transport students in the event of a radiological emergency. Because of the paucity of information provided to drivers at that time and the informality or inadequacy of those surveys, the Board finds their results to be unreliable. For example, in a driver survey of the Gross Bus Company by the Superintendent of the Owen J. Roberts School District, approximately 25 of 43 bus drivers indicated they would perform assigned responsibilities in an emergency. Others were unsure or stated that they would attend to personal needs first, although no clear breakdown was given (Claypool, Tr. 15870; LEA Exh. E-29, p. 2). This survey, however, was limited to the 43 drivers who routinely drive buses to and from schools in the Owen J. Roberts School District, and did not include other drivers employed by that provider. The Superintendent did not know the total number of drivers at either of the two locations utilized by the Gross Bus Company who could also be called upon in an emergency (Claypool, Tr. 15912-13).

260. In the same survey, there was no evidence to demonstrate that any of the remaining 18 drivers who were surveyed specifically stated they would not perform assignments if requested to do so in a radiological emergency (Claypool, Tr. 15913). Likewise, there was no information to show that drivers were encouraged to respond positively to the survey or that the importance of performing assigned responsibilities in a radiological emergency was impressed upon them (Claypool, Tr. 15914). No attempt has been made to discuss or resolve any concerns that might have affected the responses of the surveyed bus drivers (Claypool, Tr. 15918; Appl. Exh. 107).

261. The business agent for the North Penn School District expressed concerns regarding the availability of all 39 buses and drivers designated in the Montgomery County plan for his district, depending upon the time at which such a request might be made. He stated that about half of the approximately 20 drivers with whom he had spoken indicated that they would be willing to drive buses in response to an emergency at Limerick (Starkey, Tr. 16425-26). The survey discussion was so nebulous and lacking in particulars, however, that responsibilities of drivers in the event of a radiological emergency could easily have been misunderstood, i.e., that drivers would be re-entering the EPZ after a "nuclear mishap" so as to subject them to substantial radioactive releases (Starkey, Tr. 16426-29, 16455). The drivers were not informed that, in the event of an accident at Limerick, plans call for school children to be evacuated prior to the release of radiation from the facility (Starkey, Tr. 16455).

262. A survey of the bus drivers employed by the Custer Bus Company conducted by the Spring-Ford Area School District indicated that six of 40 drivers stated they would decline to drive buses to transport school children in the event of a radiological emergency (Welliver, Tr. 15523). The superintendent was uncertain, however, whether the survey included all drivers employed by the Custer Bus Service or only those who routinely drive buses for the school district's own students. He had asked the bus provider only for a list of drivers who drive for the district (Welliver, Tr. 15565-66). Accordingly, the survey did not necessarily include all drivers who would be available from the district's bus provider in the event of an actual radiological emergency (Welliver, Tr. 15566).

263. A survey of bus drivers by a committee working on the development of an emergency plan for the Methacton School District determined a need for 15 additional drivers in the event of a radiological emergency (Warner, Tr. 15623). There was, however, no probative evidence to validate the survey results as reliable and verifiable (Warner, Tr. 15625-30). Moreover, not all drivers were surveyed (Warner, Tr. 15687-88).

264. The Board believes that the very conduct of such informal surveys may very well create a problem where none exists. As noted, there is no evidence to validate those surveys or to establish the impartiality of the survey takers. Given the open hostility of a number of witnesses called by LEA to the licensing of Limerick, these are no small concerns. Where it has simply been assumed, on the other hand, that drivers will accept their emergency assignments, no unwillingness has surfaced. For example, no school bus driver in the Springfield Township School District has stated to the district superintendent that he or she would not perform assigned responsibilities in the event of a radiological emergency (Davis, Tr. 16679-80).

265. Roger Tauss is president of Local 234, Transport Workers Union of America, AFL-CIO, which represents SEPTA bus drivers of the City Transit and Frontier Divisions (Tauss, Tr. 16736-38, 16766). Family concerns would not influence SEPTA bus drivers' willingness to volunteer because the vast majority of the Local 234 union members live outside the EPZ (Tauss, Tr. 16787). Nonetheless, Mr. Tauss stated that his drivers would not go into an area of a "nuclear emergency," and that he would instruct them not to do so (Tauss, Tr. 16741-42). His position was that "there is no way that [Local 234 bus drivers] are going to

drive into a nuclear meltdown situation" because he wished to avoid their being subjected to any "devastating potential of injury" (Tauss, Tr. 16743-44, 16784-85).

266. Mr. Tauss's concern regarding a "meltdown situation" is based upon his distrust of government officials and scientists. Specifically, he would distrust any information from the Pennsylvania Bureau of Radiological Protection or PEMA that it was safe for drivers to enter the EPZ to evacuate residents (Tauss, Tr. 16773-75). His basic position was that "[e]verybody is for sale these days" and "will say what they are paid to say" (Tauss, Tr. 16813). He has no knowledge of emergency planning concepts pertaining to radiological accidents or how those concepts would be employed in the event of a real emergency to protect the public health and safety (Tauss, Tr. 16775, 16808-10).

267. Mr. Tauss testified that he had surveyed a number of SEPTA drivers and found them unwilling to assist in the event of an emergency at Limerick (Tauss, Tr. 16782). Despite his disclaimers, the Board believes that Mr. Tauss's informal survey of 30 SEPTA bus drivers was necessarily infected with his own distrust of planning for radiological emergencies and that the responses he received simply reflect his personal opinion.

268. Mr. Tauss's belief that SEPTA would attempt to coerce bus drivers to accept assignments in a radiological emergency is wholly speculative (Tauss, Tr. 16803-04). Mr. Tauss testified, however, that a SEPTA request for volunteer bus drivers would not violate its collective bargaining agreement and that if Local 234 bus drivers did volunteer, no union sanctions could be taken against them (Tauss, Tr. 16778-79, 16797,

16800, 16811). Also, if training were offered to SEPTA bus drivers, the union would not oppose it (Tauss, Tr. 16759, 16793-94).

269. Mr. Tauss's unwillingness to participate in any kind of emergency situation, including non-radiological emergencies, where it might be necessary to evacuate residents from a potential threat to the public health and safety (Tauss, Tr. 16798-99), is totally against the weight of the historic record as well as the record in this proceeding regarding the actions of bus drivers in other emergencies.

270. Transporting students from host schools to mass care centers is a very simple procedure occurring at least five hours after an evacuation notice and requiring transport of only a small number, if any, of the total number of students evacuated. There is no reason to assume that bus drivers would be unwilling to do this. Information relevant to this procedure is contained in the school district plans and the bus driver training lesson plan (Bradshaw, ff. Tr. 12761 at p. 24; e.g., Appl. Exh. E-49, p. 25; Appl. Exh. E-64, p. 32).

2. Day Care Facilities

LEA-13

> There must be specific and adequate plans for children in day care, nursery and pre-school programs in order to provide reasonable assurance that this particularly sensitive segment of the population is adequately protected.

Development and Content of Model Day Care Facility Plan

271. Nothing in NUREG-0654, 10 C.F.R. §50.47, Annex E or P.L. 1332 requires any special planning for day care facilities, nursery or pre-school facilities (hereinafter referred to collectively as "day care facilities"). In particular, there is no requirement for detailed,

site-specific plans for each and every school or institution within a nuclear power plant's EPZ. Adequate arrangements for children enrolled in such facilities should be contained in the appropriate municipal or county plans (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 14, Kinard, Tr. 20181; Campbell, Tr. 19990).

272. There are no specific plans for day care facilities at any other fixed nuclear power plant site in Pennsylvania. Such facilities at those sites fall under the general criteria applicable to the public at large (Bradshaw, Tr. 13271).

273. Prototype county, municipal and school district plans approved by PEMA for governmental units within the Limerick EPZ did not contain any specific provisions for day care facilities inasmuch as concerns for such institutions would generally come under the consideration of "special facilities" in the municipal plans (Bradshaw, Tr. 12859). Arrangements for day care facilities under the Limerick offsite emergency plans are properly characterized as provisions made for the general public (Bradshaw, Tr. 13177).

274. No federal planning standard requires that transportation resources be pre-assigned to day care facilities, or that protective action decisionmaking be any different for such facilities than for the general public (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 16).

275. Nonetheless, to assist day care facilities in their own planning, a model radiological emergency response plan for use by day care facilities ("model day care plan") was developed by PEMA in coordination with the Pennsylvania Department of Education and Department of Public Welfare for use in emergency planning at Limerick (Hippert, ff. Tr.

19498 at p. 17; Bradshaw, Tr. 13177-78; Appl. Exh. E-63). The model day care plan provides policy guidelines, recommended procedures for notifying parents at the alert stage in the event of a radiological emergency, and a specification of actions to be taken under each emergency classification. A sample letter to parents, including an explanation of actions that would be taken by the day care facility, is included as Appendix 3 of the model plan (Hippert, ff. Tr. 19498 at p. 17; Appl. Exh. E-63, p. 3-1).

276. The day care facility director bears responsibility to review his or her facility's own plan for adequacy. The director may request assistance in that review from emergency planning authorities (Campbell, Tr. 19914). Day care facilities are not required to file their plans with a municipal coordinator or county emergency management agency, although accompanying instructions and the model plan suggest that they do so (Campbell, Tr. 19990; Appl. E-63, p. 7). Municipalities will not conduct a detailed formal review of completed model day care plans but will simply check the plan to see that the appropriate blanks have been completed and that model letter had been sent to parents. This does not include a formalized approval of the plan, merely a check to determine that there is no conflict with any municipal planning provisions (Hippert, Tr. 19630-31; Reber, Tr. 19826; Campbell, Tr. 19990).

277. FEMA has not previously reviewed day care plans with regard to other fixed nuclear power plants in Pennsylvania and has indicated that it will not review any completed day care facility plans for Limerick (Kinard, Tr. 20277-78, 20290).

278. Inasmuch as the model day care plan was prepared by agencies of the Commonwealth under the direction of PEMA, it is consistent with the

planning principles and assumptions of Annex E (Reber, Tr. 19817-18; Appl. Exh. E-63). Before the model day care plan was distributed, it was reviewed and discussed at a meeting attended by representatives of PEMA, Montgomery County, Berks County, Chester County, Energy Consultants and Applicant. A few minor changes were recommended at that time, but it was agreed that the model plan was a good one (Bigelow, Tr. 14304-305). The FEMA witnesses testified that the model day care facility plan is adequate for the purposes of responding to an incident at Limerick (Asher and Kinard (Update), ff. Tr. 20150 at p. 2; Asher, Tr. 20277).

279. Essentially, making the model day care plan available was no different than offering a model fire emergency plan. Its purpose is to make people better prepared to handle an emergency (Campbell, Tr. 20077).

Identification of Day Care Facilities

280. The Commonwealth's Department of Education and Department of Public Welfare identified all licensed day care facilities within the EPZ and forwarded them a copy of the model plan to assist them in developing their own plans (Bigelow, Tr. 14133-34; Campbell, Tr. 19992; Hippert, ff. Tr. 19498 at p. 17). The Montgomery County OEP, Chester County DES and Berks County EMA identified unlicensed day care facilities by checking telephone directories, surveying area churches and youth services and through other informal contacts (Bigelow, Tr. 14134, 14356-57; Reber, Tr. 19735-36, 19837-38; Campbell (Admitted Contentions), ff. Tr. 19852, at pp. 7-8, Tr. 19900). Energy Consultants assisted the counties in identifying unlicensed facilities throughout the EPZ by soliciting information from county and municipal staff and

various organizations and by conducting telephone book surveys (Bradshaw, Tr. 13184, 13226, 13734-35). Energy Consultants also utilized a list of day care facilities provided by LEA (Bradshaw, Tr. 13185).

281. Based upon the overall effort of governmental planners and private consultants, the model day care plan has been distributed to all day care facilities within the EPZ (Proposed Finding 280). County officials and municipal coordinators have been informed of that distribution such that all identified day care facilities are known to the appropriate county and municipal planners (Hippert, ff. Tr. 19498 at pp. 17-18; Campbell, Tr. 19992; Reber (Admitted Contentions), ff. Tr. 19729 at p. 2, Tr. 19735, 19738-39; Appl. Exh. E-1, p. N-9-1; Commonwealth/Chester County Exh. E-1, p. N-5-1; Appl. Exh. E-3, p. N-1-3). Ongoing identification of day care facilities within the EPZ will be a part of the continuing planning process (Bradshaw, Tr. 13229). The emergency plans will be updated, if necessary, to identify any newly identified day care facilities (Campbell, Tr. 19999).

282. Once identified, each unlicensed day care facility was mailed the model day care plan by the county and the identity of the facility was provided to the appropriate municipal coordinator for further contact. Those facilities were asked to contact their municipal coordinators if they had any problems or needed assistance. Required resources will be identified and furnished by the municipalities. Any unmet need will be reported to the counties and passed onto PEMA as with any other unmet need. This is all part of an ongoing process (Campbell (Admitted Contentions), ff. Tr. 19852 at p. 7, Tr. 19900; Bigelow, Tr. 14137, 14356-57; Bradshaw, Tr. 13242).

283. Under the model day care plan, facility operators are responsible for arranging transportation and identifying a host facility (Hippert, ff. Tr. 19498 at pp. 17-18; Bigelow, Tr. 14137, 14305-06; Bradshaw, Tr. 13242; Appl. Exh. E-63, p. 3; Appl. Exh. E-91). If there is any problem in doing so, municipal or county officials will, as stated in the cover letter accompanying the model plan, assist in arranging the necessary resources (Bradshaw, Tr. 13242-43, 13245; Bigelow, Tr. 14134, 14308; Appl. Exh. E-91). The counties will assume responsibility for ensuring that municipal plans reflect identified needs of day care facilities for notification and transportation (Campbell, Tr. 19914-15).

284. None of the participants in PEMA's routine coordinating meetings has expressed any problem regarding the efforts of day care facility directors to identify host facilities (Hippert, Tr. 19618). Even if a specified host facility could not be arranged, it would not affect the children's safety. Day care facilities would simply use the mass care centers designated for use by the general public (Bradshaw, Tr. 13246).

285. If a facility operator cannot provide or arrange transportation, he or she has been advised to contact the municipal emergency management coordinator to fulfill that need. Thus, to the extent day care facilities report any unmet transportation needs to their municipal coordinators, those needs will be incorporated and addressed in Attachment G of the respective municipal plans like any other portion of the general population with an unmet transportation need. If the need cannot be fulfilled locally, it would be passed onto the county (Hippert, ff. Tr. 19498 at p. 18; Bigelow, Tr. 14137, 14308, 14314,

14358; Reber, Tr. 19816-17; Bradshaw, Tr. 13193-94, 13200; Appl. Exh. E-6 to E-48, Attachment O, Note; Appl. Exh. E-91).

286. There is no planning standard requiring a general public needs survey by emergency planners. FEMA has never reviewed such surveys nor even seen them before (Kinard, Tr. 20184). Nonetheless, the transportation needs for children in day care facilities were also determined by a general public needs survey within the EPZ conducted in the fall of 1983 (Bigelow, Tr. 14135; Reber, Tr. 19813-14; Bradshaw, ff. Tr. 12761 at p. 16, Tr. 13179; Appl. Exhs. E-70, E-71, E-100; LEA Exh. E-44). The survey, which was prepared in consultation with the risk counties, was designed to cover the general populace, including day care centers. Each respondent was asked to identify transportation, medical or other special needs for the persons at that address. Each day care center therefore had an opportunity to report any need for inclusion within its municipal plan (Bigelow, Tr. 14135; Reber, Tr. 19813-14; Bradshaw, ff. Tr. 12761 at p. 16, Tr. 13188-89; Appl. Exhs. E-70, E-71, E-100; LEA Exh. E-44).

287. The replies to the survey forms were compiled by Energy Consultants and the results furnished to the appropriate county emergency management agency and to the municipal coordinators for inclusion in their plans (Bigelow, Tr. 14135; Bradshaw, ff. Tr. 12761 at p. 16; Appl. Exhs. E-6 to E-48, Attachments F and G).

288. The lack of response from particular day care facilities does not indicate the survey was less than effective, since addressees were instructed to respond only to report a special need (Bradshaw, Tr. 13191; LEA Exh. E-44). If a particular day care facility has not requested emergency planning assistance from the municipality or county,

it would be logical to infer that the facility, like any other institution treated as a member of the general public, did not have any unmet needs or unresolved planning problems requiring assistance (Reber, Tr. 19826). As of this time, there have no been requests for assistance from day care centers to the risk counties for transportation or other special needs of infants and very young children (Bradshaw, Tr. 13239-40).

289. Under municipal plans and implementing procedures, each municipal EOC will notify day care facilities within its jurisdiction at the alert stage (Appl. Exhs. E-6 to E-48, p. 20; Bradshaw, Tr. 13731). Notification at this early stage will give facilities adequate time to notify parents to pick up their children (Reber, Tr. 19820; Bigelow, Tr. 14410). The model day care plan gives the facility director the discretion to close the school at the alert stage and inform parents to pick up their children (Hippert, ff. Tr. 19498 at p. 17; Bigelow, Tr. 14309, 14311; Bradshaw, Tr. 13237, 13731; Appl. Exh. E-63, p. 4).

290. In the event any children have not yet been picked up at the time an evacuation is recommended, they would be evacuated to a designated host school. The name and location of the designated host facility is specified in the sample letter to parents, which advises parents that their children will be at that location if an evacuation occurs before they are able to pick them up. Thus, except in the most extreme emergencies involving rapidly developing scenarios, parents themselves would transport their children from the day care facility. (Hippert, ff. Tr. 19498 at pp. 17-18; Bradshaw, ff. Tr. 12761 at p. 17).

291. Under the model day care plan, children remain the responsibility of the day care facility until they are released to their

parents (Campbell (Admitted Contentions), ff. Tr. 19852 at p. 8, Tr. 20001; Bradshaw, ff. Tr. 12761 at p. 17, Tr. 13273, 13744; Appl. Exh. E-63, p. 3). The Board finds nothing unusual in this because day care directors and staff otherwise act in loco parentis until children are picked up by their parents. This arrangement is appropriate (Reber, Tr. 19819).

292. Day care facility staff will not abandon children in an emergency. The uncontroverted historical record of human response in emergencies leads to the conclusion that, as with teachers and bus drivers, the family concerns of day care facility directors and staff would be balanced against larger community concerns (see Proposed Finding 181-184). In actual emergencies, such individuals have been found to balance those concerns so as to perform their obligations with regard to other individuals entrusted to their care (Bradshaw, Tr. 13222, 13273). The documented record demonstrates that reasonable adults will perform such duties in a disaster situation in the absence of training or predefined responsibilities. One can only assume that persons who care for young children have a sense of commitment and that this is acknowledged by the parents in placing their children in the custody of day care facility staff (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 17; Campbell (Admitted Contentions), ff. Tr. 19852 at p. 8, Tr. 20000-01, 20081; Bradshaw, ff. Tr. 12761 at pp. 17-18, Tr. 13215).

Day Care Facility Witnesses

293. LEA presented the testimony of three day care facility directors. These three individuals knew little of the overall planning

process for their particular facilities. They testified only as to their generalized concerns, which inevitably turned out to be unsubstantiated (Proposed Findings 294-312).

Little People's Pre-School of the Pughtown Baptist Church

294. Elaine T. Troisi is the Director of the Little People's Pre-school of the Pughtown Baptist Church, an unlicensed facility located in South Coventry Township, Chester County (Troisi, Tr. 15779, 15822). There are 24 children enrolled in the Little People's Preschool and three staff members (Troisi, Tr. 15800).

295. The Board believes that Mrs. Troisi has not to this point made a good faith effort to avail herself and her pre-school of all of the information and assistance which is available at the municipal and county levels. For example, Mrs. Troisi testified that she had not received the model day care facility plan (Appl. Exh. E-63) furnished by PEMA and the counties (Troisi, ff. Tr. 15780 at p. 5), and stated that she had not beer contacted about the model plan by the Chester County DES until December 14, 1984 (Troisi, Tr. 15791). Nevertheless, Mrs. Troisi admitted that she had known about the model day care plan for several months, but had not attempted to contact either county or municipal emergency planning officials (Troisi, ff. Tr. 15780 at p. 5, Tr. 15796-97). Mrs. Troisi further admitted that she had made no effort to contact emergency planning officials because it was not her responsibility to take this initiative (Troisi, Tr. 15799, 15819, 15833). The Board therefore believes that Mrs. Troisi has not yet availed herself of assistance from local officials to assure the safety and welfare of children in her pre-school. Her position that she will comply with

whatever information is disseminated to her is the only apparent reason why these concerns have not yet been addressed for her pre-school (Troisi, Tr. 15809).

296. Mrs. Troisi testified that she had received a public needs survey form from the Chester County DES requesting information for those who would need assistance in the event of an emergency (Troisi, Tr. 15818-19). The Board believes that the survey, along with the other information known to Mrs. Troisi at the time, was sufficient to prompt her and any other reasonably prudent day care facility owner or director to seek further guidance as to the special needs for their facilities (Troisi, Tr. 15816; LEA Exh. E-44).

297. Mrs. Troisi stated that she would need assurances regarding notification of her facility and transportation for children to a host facility in order to ensure the availability of her own staff (Troisi, Tr. 15808). Arrangements already exist at the Little People's Pre-School for staff to transport students offsite in the event of a medical emergency (Troisi, Tr. 15802-03). Mrs. Troisi has not requested any additional transportation resources for her facility. She stated her intention to review carefully the model day care plan and any other information provided by the Chester County DES to take whatever steps are necessary to secure the safety of her pre-school's children (Troisi, Tr. 15812).

298. Mrs. Troisi's concern regarding early notification is expressly covered by the South Coventry plan (Troisi, Tr. 15810-12; Appl. Exh. E-35, p. 19).

299. Mrs. Troisi was not aware of the existence of a Chester County plan, a South Coventry plan or any other plans, nor had she examined any

of those documents (Troisi, Tr. 15832-33). She did not know that the South Coventry plan, like all municipal plans, contains provisions to provide transportation for transportation-dependent individuals in the event of an emergency (Troisi, Tr. 15813; Appl. Exh. E-35, p. G-1).

300. The South Coventry plan indicates that a bus will be available in the event of an emergency to evacuate transportation-dependent individuals. Accordingly, in conjunction with the other vehicles with a capacity for 18 persons already available to Mrs. Troisi and her staff, there are sufficient transportation resources to evacuate her charges in the event of an emergency, even assuming no parental pick-up prior to their evacuation (Troisi, Tr. 15800, 15817, 15825; Appl. Exh. E-35, p. G-1).

Day Care Association of Montgomery County, Inc. - Pottstown Center

301. Ilona Seidel is director of the Day Care Association of Montgomery County, Inc. - Pottstown Center. The Pottstown Center is one branch of the parent organization. It serves 141 children and has 22 adult staff members (Seidel, ff. Tr. 16836 at p. 1, Tr. 16837).

302. The Board did not accord much weight to the concerns expressed by Mrs. Seidel. She was generally unknowledgeable as to emergency planning concepts applicable to her school. More importantly, arrangements with the Montgomery County OEP for the Pottstown Center are being handled out of the parent organization's central office (Seidel, Tr. 16842-43). Moreover, the Board cannot accord credibility to the testimony of a witness who has expressly stated that, "[d]epending upon what type of situation it is, I might [fabricate an excuse]" for school authorities in order to pick up her child at school. Notably, Mrs.

Seidel's child attends a school which is not even within the EPZ (Seidel, Tr. 16852-53).

303. The model day care plan was furnished to the Pottstown Center by the Pennsylvania Department of Public Welfare in August 1984. A cover letter and attachment provided the name of the municipal coordinator (Seidel, Tr. 16840; Appl. Exh. E-91).

304. The only concern expressed by Mrs. Seidel regarding the application of the model day care plan to the Pottstown Center was parental identification at the time of children pick-up, which would simply require the parent or guardian to present a social security card or driver's license and sign a release (Seidel, Tr. 16857).

305. Mrs. Seidel admitted that notification to the Pottstown Center at the alert stage of an emergency would adequately address her concern that parents should have an opportunity to pick up their children before the commencement of an evacuation (Seidel, Tr. 16846).

306. Mrs. Seidel stated that approximately ten staff members might not be available in any emergency because of concerns regarding their children in other school districts (Seidel, Tr. 16846). Those staff, however, have not been adequately informed as to the provisions which would be taken by the respective school districts within the EPZ for the protection of their children, including evacuation to a host facility, in the event of a radiological emergency (Seidel, Tr. 16849-50).

307. Only one of the staff at the Pottstown Center is a single parent. The evidence indicated no reason why arrangements could not be made for the families of other staff members to have the non-staff parent or some other person pick up children at school, assuming they attend school within the EPZ and that school officials would permit

parental pick-up prior to evacuation (Seidel, Tr. 16855-56). There is no known circumstance in which Pottstown Center staff have abandoned children during times of stress or personal emergency and Mrs. Seidel believes that they would not do so in the event of an emergency at Limerick if the children at the Pottstown Center were threatened (Seidel, Tr. 16859).

308. The Pottstown Center has a contract with CMD Bus Service of Pottstown for routine transportation. There is every reason to believe that CMD Bus Service would cooperate in making a commitment to provide transportation for the Pottstown Center (Seidel, Tr. 16839). If not, the Pottstown Center intends to report unmet transportation needs to the Montgomery County OEP (Seidel, Tr. 16848).

Upattinas School Open
Community Corporation

309. Sandra M. Hurst is the director of the Upattinas School Open Community Corporation (Hurst, Tr. 16540-41). The Upattinas School is a small, parent-cooperative, private academic school licensed by the Commonwealth (Tr. 16544). The school is located in the northwest corner of Upper Uwchlan Township, Chester County, just north of the Pennsylvania Turnpike and on the edge of the EPZ (Hurst, Tr. 16545-46). Though not a day care facility as represented by LEA, the Board nonetheless readily disposes of the minor planning concerns expressed by its director.

310. As a private school within the EPZ, the Upattinas School has its own plan (Appl. Exh. E-89). Although Mrs. Hurst had received the first draft of a plan for the Upattinas School in approximately March 1983, met with planning officials in May 1983, received a second draft

plan in July 1983, and had additional communication with planning officials thereafter, she was unable to specify any specific concern or objection regarding her plan which had been raised at that time (Hurst, Tr. 16546-47).

311. There are eight staff members at the Upattinas School, two of which have indicated that, depending on the situation, they might be unable to assume responsibilities with regard to the sheltering or evacuation of school children in the event of a radiological emergency (Hurst, Tr. 16551). The two staff members in question are husband and wife and have a child (Hurst, Tr. 16553). Therefore, the Board considers it unlikely that at least one of those two staff members would not be able to assist the school in the event of a radiological emergency. Accordingly, given the enrollment of 50 children in the Upattinas School (Hurst, Tr. 16555), the Board believes that adequate staff will be available in the event of an emergency to supervise the children.

312. As reflected in its plan, the Upattinas School has requested a bus from Chester County to supplement the vehicles already available to the school for the transportation of children in the event of an evacuation. Sufficient transportation will therefore be available to evacuate the school in the event of an emergency (Hurst, Tr. 16550-51; Appl. Exh. E-89, p. A3-1).

3. Residential Facilities for the Mentally Retarded

LEA-27

There must be specific and adequate plans to protect Camphill Village Special School, Inc. in East Nantmeal Twp., Chester County and for Camphill Village School in West Vincent Twp., Chester County.

Camphill Village Kimberton Hills, Inc.

313. The Camphill Village Kimberton Hills, Inc. facility, located in Kimberton, Chester County, is a residential community for the mentally retarded comprised of 12 houses on 400 acres of farmland. Five to ten individuals, including mentally retarded persons, reside together in each house (Zipperlen, Tr. 16016, 16022, 16028). Camphill Village Kimberton Farms, Inc. is not a school, but a residential community for mentally retarded individuals of all ages (Zipperlen, Tr. 16016, 16018, 16030-31). The mentally retarded residents are ambulatory and are not profoundly retarded. They are not individuals who cannot do for themselves (Zipperlen, Tr. 16024). They are able to join their resident families for shopping, entertainment and vacations. They also visit their natural families outside the community (Zipperlen, Tr. 16025).

314. There are 42 adults available at the Camphill Village Kimberton Farms, Inc. facility to supervise 28 children and 50 mentally retarded individuals in the event of an emergency (Zipperlen, Tr. 16046). To varying degrees, the staff is experienced and trained in the care of mentally retarded individuals, with whom they attempt to develop a close and personal relationship (Zipperlen, Tr. 16046-47).

315. Under the basic policy of the Commonwealth as set forth in Annex E, particularized written plans need not be prepared for a private facility such as Camphill Village Kimberton Farms, Inc. Rather, the

special needs of any such facility, if any, should be incorporated in the appropriate municipal and county plan (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 37; Campbell (Admitted Contentions), ff. Tr. 19852 at pp. 14-15; Bradshaw, ff. Tr. 12761 at pp. 28-29).

316. The Camphill Village Kimberton Hills, Inc. facility lies within the jurisdiction of West Vincent Township, Chester County. The West Vincent plan provides for special notification of that facility beginning at the alert stage of an emergency (Campbell (Admitted Contentions), ff. Tr. 19852 at pp. 14-15; Bradshaw, ff. Tr. 12761 at p. 29; Appl. Exh. E-41, p. 20).

317. The Camphill Village Kimberton Hills, Inc. facility responded to the public needs survey conducted by Chester County. That information was provided to the West Vincent coordinator, who contacted a representative of the facility to confirm its transportation needs and incorporated those needs into the West Vincent plan (Bradshaw, ff. Tr. 12761 at p. 29, Tr. 13459-60; Zipperlen, Tr. 16060-61; Appl. Exh. E-41, Attachments G and O). Ultimately, any transportation need would also be reflected in the Chester County plan (Campbell, Tr. 20005; Chester County/Commonwealth Exh. E-1, pp. N-3-2, I-2-1).

318. The Chester County DES has entered into an agreement with the Devereaux School for the mentally retarded to act as a host facility for Camphill Village Kimberton Hills, Inc. Accordingly, the special notification, transportation and host facility needs of this facility have been met, thereby providing adequate planning consideration (Bradshaw, ff. Tr. 12761 at p. 29, Tr. 13471-72; Campbell, Tr. 20005-06).

319. No special expertise or training is required by staff in order to perform the basic tasks of remaining with facility residents and

escorting them on buses to the host facility (see Proposed Findings 236-239). Training as provided to public and private schools has been nonetheless offered to the administrative personnel and operating staff of both Camphill Village Kimberton Hills, Inc. and Camphill Special Schools, Inc. Training will alleviate any unjustified fear or apprehension which might otherwise interfere with the fulfillment of assigned responsibilities. Information as to radiation and its biological effects puts certain questions and myths to rest. In that way, trained personnel have a better understanding of what situations they might encounter and makes them more likely to efficiently implement their responsibilities (Bradshaw, ff. Tr. 12761 at p. 30, Tr. 13491).

320. As with school teachers charged with the responsibility for their assigned students, the administrators and staff of the Camphill facilities can be expected to conduct themselves as responsible adults charged with the care and custody of intellectually and physically impaired individuals in the event of any emergency (Bradshaw, ff. Tr. 12761 at p. 30). Helen Zipperlen, the administrator of the Camphill Village Kimberton Hills, Inc. facility, described her own staff as volunteers acting out of conscience (Zipperlen, ff. Tr. 16070 at p. 3).

321. There is no cogent reason why presumably conscientious staff might decline to assume responsibility for transporting mentally retarded individuals with whom they reside to a host facility in the event of a radiological emergency (Zipperlen, Tr. 16053-54). Certainly, no staff member has ever stated to the administrator that he or she would not remain to assist in providing an escort for mentally retarded individuals to a host facility (Zipperlen, Tr. 16058).

322. There is no reason why the families of the Camphill Kimberton Farms, Inc. facility could not be evacuated with the mentally retarded residents to the same host facility (Zipperlen, Tr. 16050). Because resident staff of the Camphill communities would themselves need to relocate in the event of an evacuation, it is logical that they would relocate with the client residents at the designated host facility (Bradshaw, Tr. 13486). If children of the resident staff were in school in the time of an emergency, they would be protected under the provisions of the Kimberton Farms School plan (Appl. Exh. E-82).

Camphill Special Schools, Inc.

323. Bernard Wolf, is co-director of the Camphill Special Schools, Inc., located in East Nantmeal Township (Wolf, ff. Tr. 16310 at cover page, Tr. 16234-35). Camphill Special Schools, Inc. is a residential community for mentally retarded children licensed by the Commonwealth of Pennsylvania. The population of the facility varies, but averages 62 to 72 mentally retarded children, 55 to 65 staff members, plus 20 to 30 staff children (Wolf, ff. Tr. 16310 at p. 1). The facility is comprised of 10 residences, which average six to eight clientele each (Wolf, Tr. 16276).

324. The Board found Mr. Wolf to be an uncooperative witness and has weighed his testimony accordingly. The Board also notes that there is a higher level of directorate that oversees operations of the facility, which would be responsible for approval of emergency planning provisions (Wolf, Tr. 16236-37). Under those circumstances, the Board does not regard Mr. Wolf's statement of concerns as necessarily the views of his superiors regarding measures to adequately ensuring the safety and

welfare of individuals at the Camphill Special Schools, Inc. facility in the event of a radiological emergency.

325. In particular, Mr. Wolf has been uncooperative in responding to numerous attempts by representatives of Energy Consultants as well as local emergency planning authorities who were attempting to assist Camphill Special Schools, Inc. to identify and meet any emergency planning needs (Wolf, Tr. 16237-41, 16261-62). The only apparent impediment to progress in planning for the facility was Mr. Wolf's insistence that Applicant provide remuneration for facility staff for time spent in emergency planning (Wolf, Tr. 16262-63, 16271, 16308-10). Despite repeated attempts by Energy Consultants to meet and discuss specific concerns (Appl. Exhs. E-77, E-79), Mr. Wolf has not contacted Energy Consultants for assistance since his letter of August 14, 1984, stating his demand for compensation from Applicant (Bradshaw, Tr. 16950, 16963-64; Appl. Exh. E-78).

326. The public needs survey conducted by Chester County compiled information provided by Camphill Special Schools, Inc., which was provided to the East Nantmeal Township coordinator, who contacted a representative of the facility to confirm transportation needs, which have likewise been incorporated in the East Nantmeal plan (Bradshaw, ff. Tr. 12761 at p. 29, Tr. 13459-60; Appl. Exh. E-29, Attachments G and O).

327. The Board also found Mr. Wolf's testimony inconsistent with regard to existing plans for evacuation of the facility in an emergency. Under 55 Pa. Code §6400.194 (Appl. Exh. 80), all resident facilities for the mentally retarded are required to have in place a plan, inter alia, for the evacuation of residents in the event of an emergency. Camphill Special Schools, Inc. has formulated such an emergency plan, which it

forwarded on March 8, 1982 to the emergency coordinator for East Nantmeal Township, where the facility is located (Wolf, Tr. 16242-43; Bradshaw, ff. Tr. 12761 at p. 31; Appl. Exh. E-81). There is no reason why the State-required emergency plan, which makes no such distinction between man-made accidents or natural catastrophes, could not be applied to a radiological emergency at Limerick (Wolf, Tr. 16249; Bradshaw, ff. Tr. 12761 at p. 31; Appl. Exh. E-81).

328. As stated in the existing plan, Camphill Special Schools, Inc. has a sizable fleet of trucks, station wagons, cars and vans with a total capacity of up to 80 passengers which could be used in an evacuation. The emergency capacity of these vehicles would be even higher (Wolf, Tr. 16246-47; Appl. Exh. E-81, p. 2). Referring to the facility's State-required plan, Mr. Wolf stated that this fleet would suffice to evacuate all facility clientele and nineteen supervisory staff (Appl. E-81, p. 2). Transportation for about 21 remaining staff and 25 staff children would be provided by East Nantmeal Township, based upon the facility's response to the Chester County public needs survey (Proposed Finding 326).

329. Similarly, the existing facility plan requires that parents be notified to pick up their child within 36 hours. There is no reason why the same provision could not be utilized in the event of a radiological emergency, whereby parents could pick up children at the designated host facility for the school (Wolf, Tr. 16256). Any special problems associated with evacuating the facility would be associated with the clientele rather than staff and staff children, whose needs are addressed in the existing plan (Wolf, Tr. 16303-04). The children of facility staff who

attend the Kimberton Farms School would be protected under the plan for that school (Wolf, Tr. 16289; Appl. Exh. E-82).

330. No survey of facility staff was conducted when the existing emergency plan was filed with the East Nantmeal coordinator. The plan simply assumed that whatever staff might be necessary to evacuate the facility would be available (Wolf, Tr. 16255-56; Appl. Exh. E-81).

331. Facility staff live with the facility's mentally retarded residents on a full-time basis and have developed a surrogate parent relationship with the children (Wolf, Tr. 16267). The State-required facility plan states that a 1:4 ratio would provide adequate supervision to effectuate an evacuation (Appl. Exh. E-81, p. 1), which could be easily met with current staff/client enrollment. Under those circumstances, the Board believes that there will be adequate staff available to supervise the implementation of any protective action necessary for the facility's clientele in the event of a radiological emergency. Mr. Wolf's explanation that he had since changed his mind about the ratios (Wolf, ff. Tr. 16310 at p. 3) is unpersuasive inasmuch as he has not amended the ratio of 1:4 contained in the existing plan on file since 1982 (Wolf, Tr. 16291).

4. Farmers

LEA-22

The State, County, and Municipal RERP's are inadequate because farmers who may be designated as emergency workers in order to tend to livestock in the event of a radiological emergency have not been provided adequate training and dosimetry.

Farmer Designation for Re-Entry into the EPZ

332. The procedure for designating farmers as emergency workers in the three risk county plans reflects Commonwealth policy. The plans do

not constrain re-entry by those claiming to be farmers. In an actual emergency, county agents of the Extension Service of the United States Department of Agriculture and county planners would determine who is a "farmer" and what constitutes "livestock" consistently with Annex E (Furrer, Tr. 19428). Neither Annex E nor the county plans restrict the type of livestock farmer who would be permitted to re-enter the EPZ in the event of an emergency (Hippert, ff. Tr. 19498 at pp. 25-26; Reber, Tr. 19752-54; Bradshaw, ff. Tr. 12761 at p. 26, Tr. 13383-84; Cunnington, Tr. 13389-90; Appl. Exh. E-1, pp. O-2, O-3; Appl. Exh. E-2, p. O-3; Appl. Exh. E-3, p. O-3; Commonwealth Exh. E-1, App. 16, pp. E-16-2, E-16-8, E-16-9).

333. Registration for re-entry would take place at the time of an actual emergency; there is no need to pre-register (Furrer, Tr. 19419; Bradshaw, Tr. 13386; Appl. Exhs. E-1, p. O-2; Appl. Exh. E-2, p. O-2; Appl. Exh. E-3, p. O-2). Essentially, county officials will accept the representation of anyone who states that he has sufficient reason to re-enter the EPZ for that purpose (Reber, Tr. 19753; Bradshaw, Tr. 13388). The state of emergency would be sufficient to prevent unauthorized individuals who purport to be farmers from attempting to re-enter the EPZ (Bradshaw, Tr. 13389).

334. Conversely, re-entry into the EPZ would not be restricted to those farmers identified in the process of developing a conservative estimate of the number of farmers who might seek re-entry in an emergency (Cunnington, Tr. 13393, 13397). Nothing precludes a farmer from re-entering the EPZ with hired hands or family to tend to livestock (Furrer, Tr. 19420-21).

Dosimetry/KI for Farmers

335. Farmers would be designated as emergency workers because they would be given dosimetry and potassium iodide ("KI") upon reentering the EPZ. As a practical matter, however, farmers would not be performing assigned responsibilities similar to those of a fireman or policeman acting as an emergency worker (Bigelow, Tr. 14143; Appl. Exhs. E-1, E-2, E-3, Appendix O; Appl. Exh. E-101). Nonetheless, farmers designated as "emergency workers" receive the same training on dosimetry as other designated emergency workers (Bradshaw, Tr. 13384).

336. In general, county planners obtained a conservatively high estimate of the number of farmers who might seek designation as emergency workers from the local Extension Service Agent, the County Agricultural and Stabilization and Conservation Committee, and the Bureau of Soil Conservation, based on documents on file as to the farmers in the EPZ who receive materials from those agencies and operate farms. The counties supplemented this estimate with their own review of a mailing list provided to them to confirm that the number was a conservative estimate of those farmers who might wish to tend to livestock in an emergency (Hippert, ff. Tr. 19498 at p. 25-26; Campbell, Tr. 20003; Bradshaw, ff. Tr. 12761 at p. 26; Cunnington, Tr. 13392).

337. County planners have no reason to question the reliability of the list of farmers obtained from those sources (Campbell, Tr. 20003; Bigelow, Tr. 14318-19; Reber, Tr. 19822).

338. The dosimetry/KI unit supplied to farmers designated as emergency workers in each county (Appl. Exhs. E-1, E-2, E-3, Annex M, Appendix 3) is the same as for all other emergency workers (Bradshaw, Tr. 13398-99). A unit of dosimetry includes a 14-day supply of KI.

Dosimetry is a reusable item. Accordingly, there is ample time for sufficient replenishment of supplies if needed (Campbell (Admitted Contentions), ff. Tr. 19852 at p. 12; Bradshaw, Tr. 13398). The estimated numbers contained in the county plans are conservative enough to cover the situation where more than one individual per farm might require re-entry (Cunnington, Tr. 13397-98). In addition to existing supplies specifically designated for farmers, there is a reserve supply of dosimetry/KI at each county EOC and transportation staging area (Bigelow, Tr. 14321; Bradshaw, ff. Tr. 12761 at p. 26, Tr. 13399; Appl. Exh. E-1, p. M-4-1; Appl. Exh. E-2, pp. M-3-1, M-3-3; Appl. Exh. E-3, pp. M-3-1, M-3-9).

339. The Chester County plan assigns 200 units of dosimetry/KI to farmers (Campbell (Admitted Contentions), ff. Tr. 19852 at p. 12; Appl. Exh. E-2, p. M-3-1). The Berks County plan assigns 100 units of dosimetry/KI to farmers (Reber (Admitted Contentions), ff. Tr. 19729 at p. 4, Tr. 19752; Appl. Exh. E-1, p. M-4-1). The Montgomery County plan assigns one hundred eighty units of dosimetry/KI for farmers who re-enter the EPZ to care for livestock, 45 units for animal husbandry workers, and an additional reserve, totaling 236 units (Bigelow, Tr. 14318; Appl. Exh. E-3, p. M-3-1).

Farmer Training and Information

340. Under Annex E, an Emergency Workers Instructor Course is available for those who will provide information to farmers. Training for farmers themselves on emergency planning and procedures in a radiological emergency is currently available and has been offered by Energy Consultants. Such training will continue to be made available to all farmers in the EPZ (Hippert, ff. Tr. 19498 at p. 26-27; Bigelow, Tr.

14142, 14315-16; Bradshaw, ff. Tr. 12761 at p. 26; Appl. Exh. E-101). That training has been fully adequate (Asher and Kinard (Update), ff. Tr. at 20150 at p. 1; Reber, Tr. 19796-97). As with other personnel, training will be provided periodically in the future for farmers wishing to be designated as emergency workers in the event of a radiological emergency (Bigelow, Tr. 14143). In an actual emergency, a brief refresher course on dosimetry use and record keeping would be sufficient for farmers wishing to re-enter the EPZ (Furrer, Tr. 19422-23).

341. Farmers have not been trained to respond to radiological emergencies at other fixed nuclear power plant sites in the Commonwealth. The absence of such training would not adversely impact the ability of farmers to protect their livestock (Furrer, Tr. 19432).

342. A brochure to provide farmers with information about remaining with their livestock or re-entering the EPZ in an emergency was developed by the Pennsylvania Department of Agriculture for the Three Mile Island facility. It will assist farmers in protecting livestock and taking other beneficial actions in the event of a radiological emergency (Furrer, Tr. 19416; Bradshaw, ff. Tr. 12761 at p. 26, Tr. 13405). The brochure could easily be adapted for use within the Limerick EPZ (Hippert, ff. Tr. 19498 at p. 27). A request has been made by Applicant to the Secretary of Agriculture to utilize the Three Mile Island brochure on that basis and the Department has concurred in that request (Furrer, Tr. 19416-17, 19429-30). The responsible Commonwealth official has stated that he would make every effort to expedite any further action necessary for the prompt printing and distribution of the brochure (Furrer, Tr. 19430-31).

C. EMERGENCY RESPONSE STAFF AND SUPPORT ORGANIZATIONS

1. Notification and Route Alerting

LEA-26

The Draft County and Municipal RERP's are deficient in that they do not comply with 10 C.F.R. §50.47(b)(5) because there is no assurance of prompt notification of emergency workers who must be in place before an evacuation alert can be implemented, and there is no assurance of adequate capability to conduct route alerting.

Provisions to Notify Emergency Workers

343. Specific provisions exist within the county plans and implementing procedures, municipal plans and implementing procedures and procedures for special facilities to notify all emergency workers. Each county Emergency Operations Center ("EOC") is manned at all times and has a 24-hour operations capability. The public alert and notification system in each county could be activated upon notification from PEMA on the authority of the county coordinator or his alternate (Bradshaw, ff. Tr. 12761 at p. 27, Tr. 13413).

344. It is not necessary that county and municipal EOC's be fully manned and mobilized before activation of the public alert and notification (siren) system. Sirens can be activated from the county communications centers, each of which is manned 24-hours a day. Thus, even in the worst case situation of a rapidly escalating scenario, the sirens could be activated almost instantaneously by on-duty personnel upon authorization of county coordinators (Hippert, ff. Tr. 19498 at pp. 27-28; Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 36; Bradshaw, Tr. 13412-14, 13746-47).

345. The sole purpose of activating the sirens is to alert the public to tune their radios or televisions to the Emergency Broadcast

System ("EBS"). The siren signal is not a notification to evacuate. Broadcast of a sheltering/evacuation message over the EBS could also be performed without mobilizing the county and municipal EOC's (Hippert, ff. Tr. 19498 at p. 28; Bradshaw, Tr. 13413).

346. There is no requirement under NUREG-0654 or 10 C.F.R. §50.47 that all emergency workers be in place before protective actions are implemented (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 34).

347. Predesignated county and municipal EOC staff personnel can be notified on a 24-hour basis by a pre-recorded message from a computer-assisted automatic dialing system known as the RECALL system. As established at the three county EOC's, it has four telephone lines and the capability to dial pre-programmed individuals at home and business, according to the time of day activated. The system is capable of storing telephone numbers for use during different periods of the day or days of the week. It calls numbers in a listed sequence and will record a coded response which shows receipt and acknowledgement of the message. Different lists have been programmed into the system based upon the priority for reaching particular individuals. An average call takes about 30 seconds. Four calls can be made simultaneously and would proceed through the notification list until completed. Unanswered numbers will be redialed until answered (Bigelow, Tr. 14145-46, 14402-05, Reber (Admitted Contentions), ff. Tr. 19729 at pp. 4-5, Tr. 19759-61; Bradshaw, ff. Tr. 12761 at p. 27; Tr. 13409-10, 13415-16; Commonwealth/Chester County Exh. E-1, p. C-. Appl. Exh. E-3, p. C-6-1).

348. The notification list could also be completed manually in sufficient time to adequately protect the public health and safety (Reber, Tr. 19765; Bigelow, Tr. 14406-07; Bradshaw, Tr. 13417). In addition to the telephone system, a 24-hour communications capability exists to notify fire, police and ambulance services by pager. This system could be used to notify all emergency response personnel even if the RECALL system were not working (Bigelow, Tr. 14405-06).

Route Alerting

349. Route alerting would be necessary only as a backup if the siren system failed to function (Bigelow, Tr. 14146-47; Bradshaw, ff. Tr. 12761 at p. 27; Appl. Exh. E-3, p. C-5-1). There is no planning standard which requires the installation of a redundant or supplemental public alert and notification system, such as route alerting (Asher and Kinard (Admitted Contentions), ff. Tr. 20150 at p. 35).

350. In implementing route alerting procedures, firemen will travel throughout predesignated sectors and, by using loudspeakers or going door-to-door if necessary, will ensure that all persons receive notification of the protective action to be taken (Bradshaw, ff. Tr. 12761 at p. 27; Appl. Exh. E-1, p. C-6-1; Appl. Exh. E-2, p. C-6-1; Appl. Exh. E-3, p. C-5-1).

351. Under the Limerick offsite emergency plans, there are some 50 fire companies involved in route alerting assignments throughout the 43 municipalities. In all but two municipalities, Lower Providence Township and Skippack Township, the resources for conducting route alerting have been identified. All but one or two fire companies of the remaining 48 have finalized their route alerting sectors (Bradshaw, Tr. 13449, 13451). Lower Providence Township has indicated that it has the

capability to conduct route alerting, but has not yet made formal route assignments (Bradshaw, Tr. 13450). Adequate arrangements for route alerting are being developed for Skippack Township (Proposed Findings 515-517).

352. Route alerting equipment requested by individual fire companies have been passed onto the Applicant (Bigelow, Tr. 14401-02; Bradshaw, Tr. 12861-62). Applicant has agreed to purchase all equipment requested by the fire companies which is necessary for route alerting, i.e., additional public address systems (Bradshaw, Tr. 12862, 13452).

353. No fire company with responsibility for route alerting has indicated any problems of manpower availability based upon daytime or evening shift considerations. Route alerting will utilize only a small percentage of the total personnel available to volunteer fire companies. Where a single fire company has responsibility for more than one township, that consideration has been taken into account in developing the sectors and assignments. Assignments have been reviewed with the fire companies and they have indicated that they can fulfill their assigned responsibilities (Bradshaw, ff. Tr. 12761 at pp. 27-28; Cunnington and Bradshaw, Tr. 13454-55). Moreover, route alerting need not be performed solely by fire departments. It can be done by fire police, auxiliary police or private individuals (Hippert, Tr. 19588).

2. Roadway Clearance

LEA-28(a)

> There is no assurance in the County or Municipal REPP's that the National Guard will have time to mobilize to carry out its responsibilities with regard to towing and providing emergency fuel supplies along state roads.

354. Under Annex E as well as the county plans, the National Guard has the capability to assist, inter alia, with towing and providing emergency fuel supplies. As stated in the plans, this assistance would be furnished as needed in coordination with and supplementary to the capabilities of municipal and county governments and other state agencies (Commonwealth Exh. E-1, Basic Plan, Sections VII.A.17.h, VII.A.22.c and VII.A.22.d; Appl. Exhs. E-1, E-2 and E-3, Annex H, Section III; Bradshaw, ff. Tr. 12761 at p. 32).

355. As further stated in Annex E and the county plans, the Pennsylvania Department of Transportation ("PennDOT") has shared responsibility for clearance of obstacles to traffic flow, including disabled vehicles on main evacuation routes, and for establishing emergency fuel distribution points on such routes. Road clearance equipment from the PennDOT District Office will be dispatched, if needed, to keep roads clear of stalled or abandoned vehicles. Essentially, this provides a back-up support service for the counties if they lack adequate resources. Fuel and towing resources will be provided by the National Guard and PennDOT for all main evacuation routes, regardless of whether they are State or non-State roads. Under Annex E, major arteries are used as main evacuation routes to assure, to the maximum extent possible, that those routes will remain usable and unrestricted in the event of an actual evacuation (Commonwealth Exh. E-1, Basic Plan, Sections

VII.A.22.c and VII.A.22.d; Appl. Exhs. E-1, E-2, and E-3, Annex K, Section III; Bradshaw, ff. Tr. 12761 at pp. 32-33; Starasinic, ff. Tr. 20099 at pp. 4-5).

356. Annex E also states that the Pennsylvania State Police are responsible for coordinating with PEMA, PennDOT and the National Guard to control the orderly evacuation of the EPZ and, particularly, to conduct traffic surveillance to ensure that roads and highways designated as major evacuation routes are open and capable of handling the projected and actual traffic loads (Commonwealth Exh. E-1, Basic Plan, Sections VII.A.19.b and VII.A.19.e; Bradshaw, ff. Tr. 12761 at p. 33).

357. PennDOT maintains several facilities in each of the three risk counties, each of which may be promptly activated during non-business hours by means of a 24-hour emergency telephone number available to PEMA and the county emergency management agencies. Accordingly, the PennDOT facilities could be activated and deployed rapidly, if needed, independent of and prior to National Guard mobilization (Bradshaw, ff. Tr. 12761 at pp. 33-34).

358. Col. Eugene P. Klynoot is the Chief of Staff for the Pennsylvania Army National Guard (Klynoot, Tr. 19638). As the organized and equipped State militia of Pennsylvania, the Pennsylvania National Guard is ready to respond to the orders of the Governor placing it on active duty in the event of emergencies or potential emergencies within the Commonwealth (Klynoot, ff. Tr. 19642 at p. 2). The Pennsylvania National Guard has previously responded effectively to a wide variety of previous emergencies, including the Johnstown flood, the Agnes flood, other floods, major snow emergencies, trucker strikes and other emergencies (Klynoot, ff. Tr. 19642 at p. 2-3). The Guard has previously

had very good success in mobilizing under severe weather conditions (Klynoot, Tr. 19657). The designated response units are equipped with all-terrain vehicles designed for off-road travel (Klynoot, Tr. 19665).

359. Overall responsibilities for the National Guard in a radiological emergency are detailed in Annex E as well as the Guard's own plans. Such a response would involve supporting county and municipal governments within the EPZ by the deployment of designated Guard units to provide security, traffic control, evacuation and logistical assistance. To coordinate such a response, the Guard would commence operations of a National Guard EOC as well as send representatives to the Commonwealth and risk county EOC's. The Guard is prepared to provide air and ground troop transportation resources to supplement county and municipal resources to assist in an evacuation, including establishment of emergency fuel distribution points and provision of equipment and manpower for road clearance on main evacuation routes (Klynoot, ff. Tr. 19642 at pp. 4-5, Tr. 19648).

360. Three specific Guard units with a total of 1,300-1,400 troops have been designated as the primary response unit for each risk county in the EPZ. Backup units have also been assigned and are available for primary duty or to augment the primary unit as necessary (Klynoot, ff. 19642 at pp. 5-6, Tr. 19673).

361. The main body of each designated unit will be prepared to deploy when about 75% of the unit has assembled. For a worst case scenario, it would take six hours to deploy the unit assigned to Chester County, eight hours for Berks County and six hours for Montgomery County. Advance segments of each unit, however, would be dispatched to the deployment area as soon as mobilized if there were a need. For

example, each unit could dispatch its gasoline tanker truck to a point designated by planning officials within an hour to an hour and a half after notification. A wrecker truck could be similarly deployed very shortly after notification (Klynoot, ff. Tr. 19642 at pp. 7-10, Tr. 19666-67; Bradshaw, ff. Tr. 12761 at p. 34). If given advance notification by PEMA of a possible need to deploy troops, the Guard could begin the early steps of a mobilization to reduce the overall mobilization time. The Guard's plans provide for it to act upon such notice (Klynoot, Tr. 19668-69; Bradshaw, ff. Tr. 12761 at p. 34).

362. The Guard has fixed wing and helicopter aircraft available at Indiantown Gap, only 60-70 miles from Limerick, to fly equipment, supplies or personnel to emergencies (Klynoot, Tr. 19647, 19664-65).

363. In addition to wrecker trucks, the Guard has vehicles equipped with winches to assist in roadway clearance (Klynoot, Tr. 19654). Almost every military vehicle has a tow ring and is therefore able to tow vehicles (Klynoot, Tr. 19658). Heavier vehicles have chains which could also be used to move vehicles blocking traffic (Klynoot, Tr. 19663). It also might be expedient simply to push any vehicle blocking the roadway to the side of the road (Klynoot, Tr. 19663).

LEA-28(b)

> There is no assurance provided in the Municipal, or County RERP's that there are sufficient resources available to provide towing, gasoline, and snow removal along non-state roads. According to PEMA, the National Guard has neither the resources for snow removal nor the responsibilities for it, according to the Commonwealth's Disaster Operations Plan.

364. As stated in Annex E, PennDOT has responsibilities for clearance of disabled vehicles and snow from evacuation routes and for

providing emergency fuel distribution points on such routes. In describing PennDOT's responsibilities, Annex E does not distinguish between state and non-state roads. Rather, these provisions encompass all evacuation routes listed in the municipal plans and referenced in plan evacuation maps (Bradshaw, ff. Tr. 12761 at p. 34; Commonwealth, Exh. E-1, Basic Plan, Section VII.A.22; Appl. Exhs. E-6 to E-48, Section II.E.2.d and Attachments J and Q).

365. Personnel from the National Guard, PennDOT or other support organizations providing tow truck, snow removal or emergency fuel services will be performing the same functions for which they have already been trained with regard to non-radiological emergencies and will be performing those tasks within the same time frame as an evacuation of the general public. Thus, they would not be required to remain in the EPZ any longer than the evacuating public. Accordingly, no special training is required for such individuals (Bradshaw, ff. Tr. 12761 at p. 35). PennDOT does not consider snow clearing in a radiological emergency different from any other snow emergency (Farrell, Tr. 20112, 20119, 20127).

366. Under municipal plans, snow and other debris on evacuation routes will be removed by the municipality and PennDOT. Each municipality either has it own snow removal resources or has contracted for such services. Those contracts encompass all snow emergencies and make no distinction as regards other possible circumstances such as a radiological emergency at Limerick. Moreover, PennDOT would be available to provide back-up snow removal services to the municipalities for non-evacuation routes, if needed. The Commonwealth has a vast inventory of snow removal equipment and personnel in southeastern Pennsylvania

that could be used on a priority basis in the event of a radiological emergency. Unusually severe snow storm conditions would be considered by the Commonwealth in determining whether evacuation of the EPZ would be undertaken (Bradshaw, ff. Tr. 12761 at p. 36; Appl. Exhs. E-6 to E-42, Section II.E.2.k(2)).

367. Henry W. Farrell and Fred Starasinic are civil engineers employed by PennDOT who testified as to PennDOT's capabilities (Farrell and Starasinic, Tr. 20097). Depending on the severity of the situation, several procedures could be implemented to snowplow non-State roads in the EPZ. Locally based PennDOT equipment could be activated immediately. Equipment from other districts, but within a few hours response time, could also be activated. There are no union contract problems with assignment of equipment operators or support personnel to snowplow non-State highways (Farrell, ff. Tr. 20099 at p. 2; Proposed Finding 357).

368. Privately owned snow clearance equipment is also available and commonly utilized under contract with private services, either on a regular or standby emergency basis. Additionally, PennDOT may utilize emergency agreements for specialty type equipment not under standby agreement (Farrell, ff. Tr. 20099 at pp. 2-3, Tr. 20121-22).

369. Designated mobile emergency teams ("MET") in each district may be called upon to work in other districts during emergency situations. Further, upon declaration of a disaster emergency by the Governor, PennDOT would have blanket authority to secure needed manpower and equipment from any practical source (e.g., National Guard, municipalities, contractors, equipment suppliers and other State agencies) to keep roads open. Finally, over 700 agreements with municipalities to

plow sections of State roads are on file. Those municipalities, such as Limerick Township, could also be called upon for services (Farrell, ff. Tr. 20099 at pp. 3-4).

370. PennDOT has about 2,200 pieces of snow removal equipment State-wide (Farrell, Tr. 20106). In an actual snow emergency, PennDOT would identify its priorities and dispatch equipment and personnel accordingly. PennDOT has operational capability to switch priorities rapidly (Farrell, Tr. 20105-07). Given sufficient notification to clear roads before an evacuation, there would be no traffic congestion which would interfere with snow plowing (Farrell, Tr. 20126).

371. Representatives of the Pennsylvania State Police and PennDOT are included as liaisons to each county EOC. This will enable coordination with the county to implement State Police and PennDOT responsibilities. Additionally, the State Police have been directly involved in designating the traffic and access control points which they are assigned to man in an emergency (Bradshaw, Tr. 13449-500, 13513).

372. It is unnecessary for the counties to obtain agreements with tow truck operators because tow trucks are routinely dispatched by the counties on a daily basis without any agreement. Extensive towing resources are listed in the resource manuals of the County Communications Centers. The several hundred tow trucks available in each of the three counties greatly exceed the number which might be needed. Additionally, PennDOT will provide its own equipment to assist in the removal of disabled vehicles and other road obstacles (Bradshaw, ff. Tr. 12761 at p. 35; Bradshaw, Tr. 13517; Cunnington, Tr. 13528).

373. In many instances, it would be unnecessary to provide gas or towing services for a stranded or disabled vehicle. It could simply be

pushed to the side of the road (Campbell, Tr. 20007; Bradshaw, ff. Tr. 12761 at pp. 35-36). Persons having vehicles without enough fuel to travel out of the EPZ would be included as members of the general public without transportation. The public information brochure will instruct residents in the EPZ as to how to obtain publicly provided transportation (Bradshaw, ff. Tr. 12761 at p. 35).

374. A current list of wrecker/tow operators is maintained on file in the Berks County Communications Center, which is fully staffed on a 24-hour basis. Dispatching wreckers/tow trucks is a routine operation and there has never been a shortage of these resources in Berks County. Additionally, the Berks County plan lists gas stations/operators who have agreed to open or remain open in emergencies. Telephone numbers for 24-hour contact with those resources are on file. Given these resources, there is no need for any written agreements (Reber (Admitted Contentions), ff. Tr. 19729 at p. 5). Although it has never been necessary, additional tow trucks could be obtained upon request from Schuylkill, Lebanon or Lancaster Counties (Reber, Tr. 19824).

375. During an actual evacuation, the Montgomery County OEP would utilize police to monitor road conditions, including potential traffic congestion. Field services, such as Public Works Department personnel would also be utilized (Bigelow, Tr. 14150). Roadway clearance resources are also available to the County (Bigelow, Tr. 14150; Appl. Exh. E-3, Appendix K-3).

376. In Chester County, there are more than 100 towing services which are dispatched on a daily basis; some services have more than one tow truck (Campbell, Tr. 20007).

377. Past experience in disaster evacuations shows that vehicle breakdown and lack of gasoline are not problems and do not, therefore, impede evacuation. For example, towing demands around holidays are typically far greater (Bradshaw and Cunnington, Tr. 13530-31). Adverse weather conditions would not necessarily increase the need for towing services or render them less available (Bradshaw and Cunnington, Tr. 13531-33).

378. In times of emergency, there would be an increase in altruistic behavior on the part of the public. Individuals will assist motorists in moving a disabled vehicle, and offer stranded motorists a ride (Cunnington, Tr. 13534-36).

3. Staffing of Emergency Operations Centers

LEA-2

The unadopted RERP's fail to provide reasonable assurance that each principal response organization has sufficient staff to respond to and to augment its initial response on a 24-hour continual basis, or that the assigned staff can respond in a prompt manner in case of a radiological emergency at Limerick.

379. Previous to development of the plans, few municipal emergency management agencies had any staff other than a designated coordinator. As planning requirements were clarified, the recruitment process began. Significant and steady progress in this process has been made since the first drafts of the plans. All but one of the 43 municipalities now have a complete first shift. Most have a complete second shift. The few remaining vacancies can be filled by the municipalities, but could, if need be, be passed on to the counties (Bradshaw, ff. Tr. 17191 at p. 3, Tr. 17291-92).

380. There are outstanding vacancies for only a few municipalities and positions throughout the EPZ, i.e., Collegeville (1), Upper Pottsgrove (1), Washington (1), Union (8) and South Coventry (accurate data unavailable; total of 10 required) (Bradshaw, ff. Tr. 17191 at pp. 5-7, Tr. 20337-39; Appl. Exh. E-35, pp. 10-11, Attachment I-1; FEMA Exh. E-3).

381. More immediately available volunteers are placed on the EOC first-shift staff (Bradshaw, Tr. 17384). The first shift would assure initial responsibilities in the event of an emergency, regardless of the time of day (Bradshaw, Tr. 17387).

382. In responding to radiological emergencies, as opposed to other emergencies, the municipalities have determined that they would need

between three to five individuals per shift. Implementing procedures are established on a functional basis for each discrete task, which could therefore be performed by any trained individual in the municipal EOC. This was demonstrated during the July 25, 1984 exercise where the Greenlane Borough volunteers had no previous training, but were able to utilize the implementing procedures to effectively implement the municipal plan (Bradshaw, Tr. 17359-60).

383. Although a number of Applicant's employees have volunteered their services to their respective municipalities, not all of those volunteers were ultimately selected. (Bradshaw, Tr. 17293). Only about 50 of the 400 or so EOC positions are manned by Applicant's employees (Bradshaw, Tr. 17293). Applicant's employees with either onsite or offsite Limerick responsibilities were excluded (Bradshaw, Tr. 17294-95).

384. Applicant's employees who had volunteered for the municipal EOC's would be utilized for all emergencies, not just radiological emergencies. There were no distinctions in the recruitment process with regard to whether an EOC volunteer was Applicant's employee. Municipal coordinators use their own discretion to determine whether or not a volunteer was suitable (Bradshaw, Tr. 17367-68). Such judgment, in the opinion of township supervisors, is competent and reliable (Proposed Finding 399).

385. Attachment O of each municipal plan lists personnel requirements for such activities as route alerting, traffic control, ambulances and communications, i.e., Radio Amateur Civil Emergency Service ("RACES") or Amateur Radio Emergency Services ("ARES") radio operators.

Some unmet municipal needs for traffic control and radio operators have been passed on to the counties (Bradshaw, ff. Tr. 17191 at p. 3).

386. Both Berks and Montgomery Counties have met municipal needs for radio operators through RACES volunteers. Chester County has passed a requirement for additional radio operators on to PEMA (Bradshaw, ff. Tr. 17191 at pp. 3-4). The availability of amateur radio operators in Montgomery and Berks County so far exceeds their needs that there would be an ample number of radio operators which could assigned to Chester County, if necessary, by PEMA as with any other unmet need. Additionally, Lancaster and Delaware Counties, which are immediately adjacent to Chester County, have a considerable number of radio operators (Bradshaw, ff. Tr. 17191 at p. 4; Bradshaw and Cunnington, Tr. 17387-89).

387. The Chester County plan indicates that the DES intends to satisfy reported municipal EOC staff needs for seven persons in an actual emergency (Bradshaw, Tr. 17335; Appl. Exh. E-2, p. Q-1-1). The unmet need for municipal staff would be essentially zero, however, for a radiological emergency (Bradshaw, Tr. 17337, 17361). Accordingly, Chester County has the capacity to meet additional municipal staffing needs which have not been reported yet, especially for a second shift.

388. Chester County has shown that unmet staffing needs for South Coventry can be obviated by the county's assumption of emergency response functions for that township (Proposed Findings 481-483). Nevertheless, South Coventry has affirmatively stated its intent to develop a full emergency response capability (Proposed Findings 479).

389. Similarly, Berks County has stated its capability to support or assume Union Township's EOC functions in an actual emergency, although

it expects Union to resolve staffing shortages through additional recruitment and realistic paring down of staff needs, including possible combination of certain compatible staff functions (Proposed Finding 495). Given the Berks County commitment of assistance, the Board expects Union Township to work in that direction and continue recruitment efforts until full 24-hour EOC staffing has been achieved.

4. Letters of Agreement

LEA-5

> The Emergency Response Organizations (including federal, state, and local governments and support organizations) have failed to fully document the existence of appropriate letters of agreement with support organizations and agencies. Thus, there is no reasonable assurance that the emergency plans can be implemented.

390. Initially, it must be understood that under NUREG-0654, Criterion A.3, a letter of agreement does not express a contractual commitment, but rather serves as a statement of interest of the parties entering the agreement to provide assurance that a support organization has been notified and has agreed in principle to provide a support function (Bradshaw, Tr. 17379). FEMA testified that the types of letters of agreement obtained by Chester and Montgomery Counties are sufficient under NUREG-0654 (Asher, Tr. 20273).

391. In this light, agreements have been sought and obtained for such support functions as host schools, host health care facilities, bus providers, reception centers, Red Cross support, Emergency Broadcast System support and decontamination stations. Mass care agreements have been developed in each county in accordance with the particular arrangements in existence between the counties and their respective Red Cross

Chapter. Those arrangements have been completed for each county (Bradshaw, ff. Tr. 17191 at p. 11).

392. RACES and ARES agreements are unnecessary since the sole purpose of these organizations is to assist in emergency situations. They are considered extensions of the county emergency management agencies with which they have a close working relationship. Furthermore, the ARES and RACES organizations demonstrated their commitment to assist in a radiological emergency response by their participation in the July 25 and November 20, 1984 exercises, including necessary staffing of municipal EOC's as prescribed by the municipal and county plans (Bradshaw, ff. Tr. 17191 at p. 11).

393. Agreements for road clearance services are not required and are unnecessary. The county emergency management agencies routinely dispatch tow trucks. Extensive resources are available and are on file in the county EOC's. Further, additional road clearance resources are available from the National Guard and PennDOT (Bradshaw, ff. Tr. 17191 at pp. 11-12; Proposed Findings 354-378).

394. About three-fourths of all agreements are complete (Bradshaw, ff. Tr. 17191 at pp. 12-15). In any event, the absence of written agreements does not preclude the workability of the plan (Thompson, Tr. 18832-33).

395. Letters of agreements for the evacuation of school children and other transportation-dependent individuals have been or are now being obtained by means of a thorough, systematic review of transportation resources and consultation with identified providers. Based on the established mechanisms for obtaining outstanding transportation agreements under the county plans or passing unmet needs to PEMA, the

Board is satisfied that all necessary agreements will be obtained (Proposed Findings 86-171).

D. PLAN ADOPTION

1. Counties, Municipalities and School Districts Within the Limerick EPZ.

LEA-1

> The Risk Counties, Municipalities, School Districts, and Institutions haven't promulgated or adopted final radiological emergency response plans, nor have they approved and adopted plans drawn up for them by Energy Consultants, Inc., a Harrisburg firm hired by Philadelphia Electric Company. There is no reasonable assurance that the present state of planning is predictive of final approval, or that the plans are capable of being implemented.

Emergency Planning Requirements in the Commonwealth of Pennsylvania

396. Emergency planning in Pennsylvania follows the mandate of the Emergency Management Services Act of 1978, Act of November 26, 1978, P.L. 1332, No. 323 ("P.L. 1332"). P.L. 1332 sets forth a comprehensive legislative scheme by which municipalities, counties and the Commonwealth are required to establish emergency plans, procedures and resources, inter alia, to reduce the vulnerability of the Commonwealth populace to injury and loss of life resulting from disasters, and to prepare for the prompt and efficient rescue, care and treatment of disaster victims. P.L. 1332, 35 Pa. C.S.A. §§7103(1) and (2). With regard to planning requirements at the local level, 35 Pa. C.S.A. §7501(a) provides:

> (a) Establishing emergency management organization. - Each political subdivision of this Commonwealth is directed and authorized to establish a local emergency management organization in accordance with the plan and program of the Pennsylvania Emergency Management Agency. Each local organization shall have responsibility for emergency management,

> response and recovery within the territorial limits of the political subdivision within which it is organized and, in addition, shall conduct such services outside of its jurisdictional limits as may be required under this part. [Emphasis added.]

397. Under Section 7502(d), each local organization is required to appoint an emergency coordinator who "shall be professionally competent and capable of planning, effecting coordination among operating agencies of government and controlling coordinated operations by local emergency preparedness forces." Additionally, P.L. 1332 states several requirements regarding the status of emergency preparedness for each political subdivision of the Commonwealth. Section 7503 provides, inter alia:

> Each political subdivision shall:
>
> (1) Prepare, maintain and keep current a disaster emergency management plan for the prevention and minimization of injury and damage caused by disaster, prompt and effective response to disaster and disaster emergency relief and recovery in consonance with the Pennsylvania Emergency Management Plan.
>
> (2) Establish, equip and staff an emergency operations center, consolidated with warning and communications systems to support government operations in emergencies and provide other essential facilities and equipment for agencies and activities assigned emergency functions.
>
> (3) Provide individual and organizational training programs to insure prompt, efficient and effective disaster emergency services.
>
> (4) Organize, prepare and coordinate all locally available manpower, materials, supplies, equipment, facilities and services necessary for disaster emergency readiness, response and recovery. [Emphasis added.]
>
> . . . .

398. From the testimony of the county and municipal officials and planners, there emerged a clear consensus that P.L. 1332 imposes mandatory, not discretionary, obligations upon local governments to have in

place a workable emergency plan, an emergency response organization, and an emergency operations center and related resources necessary to respond to any disaster emergency, whether radiological or non-radiological, natural or man-made. Similarly, each county and municipal official testified that it was the intention of his Board of Commissioners or Board of Supervisors to comply with the requirements of P.L. 1332, without distinction between radiological and non-radiological disaster emergencies, by working toward the adoption of a workable emergency plan (Bartle, Tr. 18623; Thompson, Tr. 18858; Grenz, Tr. 17950-52, 17954; Yeager, Tr. 18046-47; Skarbeck, Tr. 17835; Waterman and Templeton, Tr. 18095-96, 18099-101; Brown, Tr. 18180-81, 18225, 18230; Whitlock, Tr. 18471; Kelly, Tr. 18571-72; August, Tr. 18903; Giamo, Tr. 19125-29).

399. Each of the county and municipal officials also expressed confidence in their respective emergency coordinators as "professionally competent and capable" as required by Section 7502(d) of P.L. 1332, and stated that they would rely upon the coordinator's professional assistance and recommendations in adopting an emergency plan. Typically, the township supervisors and county Commissioners who would be responsible for approving the plans have not yet reviewed them in sufficient detail to be familiar with each of the planning concepts and principles as well as their application to the respective plans. Rather, those officials have almost entirely delegated responsibility for developing a plan to their coordinators and requested them to submit plans for consideration when deemed suitable for approval (Thompson, Tr. 18857; Bartle, Tr. 18582, 18597, 18611-13, 18620; Grenz, Tr. 17888-89, 17891-92, 17952-53; Yeager, Tr. 18006-07, 18047-48; Skarbeck, Tr. 17767, 17832-33, 17835,

17851, 17862-63; Waterman and Templeton, Tr. 18062-63, 18094-96; Whitlock, Tr. 18534-35; Kelley, Tr. 18565-67, 18655; August, Tr. 18938, 18973-74; Brown, Tr. 18186; Giamo, Tr. 19134). The record is devoid of any evidence that local coordinators have advised their respective counties or municipalities of any serious deficiency in the plans or obstacle to their ultimate adoption (e.g., Bartle, Tr. 18613, 18621; Skarbeck, Tr. 17769-70, 17834; Grenz, Tr. 17891-92, 17948, 17953; Thompson, Tr. 18841; August, Tr. 18879, 18961-62; Giamo, Tr. 19129-30).

400. A number of township supervisors testified as to their personal concerns regarding certain plan provisions. In general, most concerns fell into two categories. First, a number of supervisors stated that greater work had to be done in identifying "unmet needs" at the local level and pinpointing the source which would satisfy that need. The Board sees this as nothing more than the logical culmination of the planning process in Pennsylvania under P.L. 1332, which requires municipalities to report any unmet needs at the local level to their respective counties and on to PEMA, if necessary (Hippert, ff. Tr. 19498 at p. 9; Bradshaw, ff. Tr. 12761 at p. 3).

401. As a second category, some township supervisors stated various concerns which resulted from a misunderstanding of the basic planning principles and assumptions under Annex E and P.L. 1332, a need for further coordination with county and/or PEMA officials, or an understandable lack of familiarity with the details of their plans. With the assistance of the three county coordinators and PEMA officials, all of whom demonstrated a highly professional attitude before this Board, we are convinced that those concerns will also be resolved. The unanimous declaration by all government officials of their intent to

comply with P.L. 1332, in the Board's view, overrides the relatively minor concerns stated by some officials.

402. Some township officials have felt a lack of interest on the part of PEMA in assisting them in complying with their responsibilities under P.L. 1332 or have detected indifference with respect to the enforcement of its mandatory provisions (e.g., Kelly, Tr. 18562-63, 18565, 18675-76). Some officials acknowledged that, although the requirements of P.L. 1332 are mandatory and have been in existence for some time, they have not yet conformed to the law (Brown, Tr. 18226-27). The Board believes that as PEMA and the counties assist municipalities in their present efforts to comply with P.L. 1332, this situation will change.

Development of Offsite Emergency Plans

403. The 61 county, municipal and school district draft plans received in evidence (Appl. Exhs. E-1 through E-61) represented the current status of emergency planning for the respective jurisdictions within the EPZ at the time of the hearing (Bradshaw, Tr. 16930). These draft plans were developed with the assistance of Energy Consultants and have undergone numerous reviews by county and municipal emergency personnel and school district officials, as well as the Commonwealth (Bradshaw, ff. Tr. 12761 at p. 1).

404. As utilized in developing revised versions of the county, municipal and school district plans, the term "draft" means that the plan is still in a working stage and has not yet been formally approved by the local jurisdiction (Bradshaw, Tr. 12766). This does not mean that the plan or portions of the plan are not functional, but rather that the plan is evolving and that some material awaits approval

(Bradshaw, Tr. 12767). The details of virtually all plans are evolving to a point at which each respective jurisdiction will recognize the draft as a final and adoptable plan (Feich, Tr. 14927; Reber, Tr. 19771; Bradshaw, Tr. 12767-68).

405. The number of drafts generated for each jurisdiction reflects the evolution of planning policies and procedures. Planning data necessarily develops over the course of the project and as new information accumulates, it is incorporated into a new draft plan. Since the planning process is slightly different for each jurisdiction, there is no particular correlation between the number of drafts and the length of the planning process, or the number of comments by the jurisdiction on the previous drafts (Bradshaw, Tr. 12777-78).

406. The planning process has involved Energy Consultants in providing assistance to the various jurisdictions in developing their draft plans. This process has included hundreds of meetings, thousands of correspondence exchanges and training as appropriate (Bradshaw, Tr. 12861). Energy Consultants routinely changed the plans as requested by the respective jurisdictions (Reber, Tr. 19790; Campbell, Tr. 19950-51; Warner, Tr. 15662; Cunnington, Tr. 16929-30).

407. The phrase "prepared by" on the cover page of the various plans was simply intended to reflect the situation at the time the plan was ultimately adopted and to encourage jurisdictions to recognize the plans as their own. Unless the promulgation page had been signed, there could be no confusion as to the actual adoption of the plan (Bradshaw and Cunnington, Tr. 16928-29).

408. The various plans call for review and revision at least annually and in some cases semi-annually, even after the plans have been

formally adopted and promulgated (Bradshaw and Cunnington, Tr. 12775-76, 13641, 13714). For example, school plans will be routinely amended for changes in enrollment and administrative personnel (Cunnington, Tr. 12777).

409. Additionally, any time a jurisdiction perceives a need to revise information, it can be added. This dynamic, ongoing process is reflected in revisions to the Downingtown School District plan subsequent to its formal adoption on February 8, 1984 (Bradshaw and Cunnington, Tr. 12850-51). Any plan must be updated to remain viable. In that sense, it is hard to call any plan final (Waterman, Tr. 18096; McGill, Tr. 20369).

410. Energy Consultants has provided school and municipal officials with copies of P.L. 1332 and has pointed out specific sections of that law in response to questions. They have also explained that P.L. 1332 describes the responsibilities and inter-relationships of the State, county and municipal governments with respect to emergency planning. School district and municipal authorities have also been directed to appropriate State or county planning officials for further information as necessary (Cunnington and Bradshaw, Tr. 12826-27).

411. As part of the planning process, Energy Consultants has specifically advised the municipalities and school districts that they should not approve any plan which, in their opinion, cannot work (Bradshaw, Tr. 12827-28). The objective of Energy Consultants under its contract with Applicant has been solely to develop workable plans for jurisdictions within the Limerick EPZ, not to obtain approval of the various plans (Bradshaw, Tr. 12867-68).

412. Energy Consultants has never advised school district or municipal officials that a plan would be written for them if they chose not to adopt the draft plan prepared by Energy Consultants (Bradshaw and Cunnington, Tr. 12828-29; Feich, Tr. 14927; Persing, Tr. 14792-93). Nor has Energy Consultants interfered with local decision-making in the formal plan adoption process by stating to local officials or planners that Limerick will be licensed whether or not they are satisfied with their plans (Bradshaw, Tr. 12829).

413. There has never been any intent on the part of the emergency planners of the counties, municipalities or school districts to offer their draft plans for formal adoption until informal review of the plans had been completed by PEMA and FEMA and the plans had been tested in an exercise, which occurred on July 25, 1984. Nonetheless, the Downingtown and Perkiomen Valley School Districts have already adopted their plans (Bradshaw, ff. Tr. 17191 at p. 2, Tr. 17284-85).

414. Responses from FEMA on the informal Regional Assistance Committee review were not made available to the counties and municipalities until May 1984. The counties chose not to make plan amendments that close to the July 25, 1984 exercise. As expected, the July 25 exercise resulted in revisions to some plans. Municipal plan revisions incorporating the RAC comments and other changes resulting from the July 25 exercise were incorporated into the September and October municipal plan drafts. The municipalities are in the process of taking action on those changes (Bradshaw, ff. Tr. 17191 at p. 2, Tr. 17323; FEMA Exhs. 4, 6, 7).

415. A supplemental exercise for those municipalities and school districts which did not participate in the July 25 exercise was

conducted on November 20, 1984. It is likewise anticipated that revisions to the plans resulting from the November 20 exercise will be incorporated in the plans (Bradshaw, ff. Tr. 17191 at p. 2; FEMA Exh. E-5).

416. The plans in evidence provide assurance that the necessary actions can be taken in the event of an emergency. The ability to implement the emergency plans for entities within the EPZ does not depend upon formal adoption of the plans by the various jurisdictions because, as PEMA has acknowledged, the plans accurately reflect the current capacity to respond to an emergency in each jurisdiction (Bradshaw, ff. Tr. 17191 at p. 2, Tr. 17283; Commonwealth Exhs. E-10, E-13a, b, c). For example, the Collegeville plan has been utilized in response to a flood (Bradshaw, Tr. 17283). Several families in Collegeville and Perkiomen Townships were evacuated and a mass care center was established (Cunnington, Tr. 17317). Collegeville EOC staff were promptly notified, the EOC was activated, and all members of the general public requiring protective action were notified in accordance with the provisions of the plan (Bradshaw, Tr. 17318).

417. The plans in evidence have been provided to municipal coordinators for review by planning staff and local officials. After completion of certain items identified in the most recent draft, the municipal plans should be considered ready for review by Commonwealth and federal authorities. For example, some plans were amended to fill in the one or two remaining staff vacancies in the municipal EOC's (Bradshaw, Tr. 17277-78). In general, the time frame for consideration and adoption of the municipal plans would be February and March 1985 (Bradshaw, Tr. 17276-77, 17284, 17364).

418. PEMA concurs that if the most recent drafts of the county, municipal and school district plans reflect the changes, corrections and additions it recommended in the fall of 1983 and those recommended by FEMA in April 1984, the plans should be adequate and capable of being implemented (Hippert, ff. Tr. 19498 at p. 2). PEMA takes the position that the current plans would, in a practical sense, be the basis for the counties, municipalities and school districts to respond to a radiological emergency at Limerick if an accident occurred prior to formal adoption of the plans. The general provisions in Annex E plus any site specific information would be utilized by PEMA in responding to such an accident (Hippert, Tr. 19573-74; Commonwealth, Exh. E-10).

419. Although LEA solicited testimony from PEMA and FEMA officials regarding the status of their reviews (Hippert, Tr. 19501-25; Asher and Kinard, Tr. 20153-67), there is no evidence linking those reviews with formal adoption by the school districts, municipalities and counties of their respective plans. To the extent necessary to reach a decision on whether those plans are workable, or in will be workable in final form, the Board has sufficient evidence to reach its own conclusions, independent of any review that will be conducted by PEMA and FEMA pursuant to 44 C.F.R. Part 350. Accordingly, the Board does not regard the status of those reviews as relevant to its disposition of the LEA/FOE contentions.

420. It is not essential either from the viewpoint of legal requirements or practical workability that local school districts or municipalities adopt their emergency plans before a county adopts its own plan (Bradshaw, Tr. 12905-06). Even if the municipalities and school districts have not formally adopted their draft plans, PEMA could

nonetheless find them acceptable as in consonance with the county plan and Annex E where the plan is capable of being implemented. There might be unknown reasons entirely unrelated to those concerns for which a Board of Supervisors or Board of Education might not wish to sign the plan (Hippert, Tr. 19625-26).

421. Even assuming that they are not legally required by P.L. 1322 to adopt emergency plans, school districts would adopt such plans, consistent with the plans developed by political subdivisions covered by P.L. 1322, in order to protect the health and safety of school children (Murray, Tr. 15166). Two school districts were preparing their plans for formal submission to their school boards at the time of the hearing. Another three school districts were awaiting formal completion of host school agreements. In the interim, they are completing other aspects of their plans so that, when host school agreements are signed, their plans will be reviewable and adoptable by their respective school boards. The remaining districts are making either minor changes to their plans or developing implementing procedures prior to formal submission of their plans to the school boards. In general, the schedule for formal submission for adoption ranges from January through April 1985 (Cunnington, Tr. 17276). The school superintendents unanimously stated the intent of their respective school districts to work toward the development and adoption of a workable plan (e.g., Feich, Tr. 14927; Murray, Tr. 15096-97; Welliver, Tr. 15548-49; Warner, Tr. 15635-36).

422. Regarding the three outstanding host school agreements to be executed, the prospective host school districts already have existing mass care agreements with their counties (Cunnington, Tr. 17352-53). There are no major obstacles which preclude completion of the remaining

host school agreements. Those agreements are incomplete because of newly arising changes in the plans or procedures which require designation of a new facility (Bradshaw and Cunnington, Tr. 17302-03).

423. The Board now discusses seriatim the status of plans and planning of each jurisdiction for which LEA presented witnesses.

Montgomery County

424. Paul Bartle is the Chairman of the Montgomery County Board of Commissioners (Bartle, Tr. 18581). He stated that if regulatory agencies approve the operation of Limerick, Montgomery County would cooperate in every way to achieve the best possible emergency plan. This includes coordinating with all emergency authorities, i.e., volunteer firemen, emergency medical units and school districts, in order to effectuate a plan. Mr. Bartle would not permit any personal or intuitive reservations to prevent adoption of a proper plan (Bartle, Tr. 18592).

425. Based upon previous County responses to flood and fire emergencies, Montgomery County volunteers would respond to a radiological emergency (Bartle, Tr. 18627). Mr. Bartle expressed his confidence that, in an actual emergency, school districts would be responsive to requests for emergency bus transportation (Bartle, Tr. 18631).

426. An earlier statement by Mr. Bartle as to his belief in the effectiveness of an evacuation plan was limited to the context of a late night evacuation during cold, snowy weather (Bartle, Tr. 18587). At this juncture in the development of a Montgomery County plan, Mr. Bartle has not had an opportunity to be informed as to the choice of protective actions that could be taken under extremely adverse weather conditions (Bartle, Tr. 18614, 18619). Accordingly, the Board does not regard Mr.

Bartle's earlier opinion as one which is likely to affect adoption of a plan for Montgomery County.

427. The Montgomery County Commissioners intend to continue working toward the development of a workable plan, addressing particular concerns as they arise (Bartle, Tr. 18623). In the event of a radiological emergency prior to formal adoption of a plan, Montgomery County would implement the latest draft available to carry out those provisions (Bartle, Tr. 18633). Mr. Bigelow, the Montgomery County Coordinator of Emergency Preparedness, testified that the current draft Montgomery County plan is a workable plan (Bigelow, Tr. 14170).

428. Rita C. Banning is the Minority Commissioner of the Montgomery County Board of Commissioners (Banning, ff. Tr. 17752 at p. 1). She has no formal education or training in emergency planning, radiation health effects or traffic engineering (Banning, Tr. 17534-35). Mrs. Banning had not yet become familiar with planning concepts contained in the Montgomery County plan by discussing her planning matters with any Commonwealth or county planning officials (Banning, Tr. 17547-51, 17554-57, 17607-15).

429. Mrs. Banning had not contacted the Montgomery County Coordinator or other persons with regard to the specific concerns she raised in her testimony (Banning, Tr. 17615, 17684-88).

430. Although Mrs. Banning attributed her lack of information about the Montgomery County plan in part to her status as a minority commissioner (Banning, Tr. 17558-59, 17730-32), the Board believes otherwise (Bartle, Tr. 18636-38; Banning, Tr. 17563-74, 17749-50, 17620-21, 17744).

431. Mrs. Banning was unfamiliar with the requirements for complying with P.L. 1332 (Banning, Tr. 17616-17, 17642-43), and was not aware that training has been available to bus drivers responding to a radiological emergency (Banning, Tr. 17671).

432. Mrs. Banning's principal criticism was the format of letters of understanding with bus providers. Mrs. Banning was not, however, familiar with the background planning or details known to the planners which formed the basis of those letters (Banning, Tr. 17628-29), or that the format was determined by the Montgomery County Coordinator of Emergency Preparedness in consultation with the County Solicitor and PEMA (Proposed Findings 96-97). She had no knowledge of the varying circumstances which school districts or providers had considered in determining how many buses and drivers could be supplied at any given time in the event of a radiological emergency (Banning, Tr. 17629).

433. Mrs. Banning plans to review the Montgomery County plan based upon her "intuitive," "subjective" or "just common sense judgment" (Banning, Tr. 17618). She was unable to identify other specific sources of information, including planning officials or experts at the State and federal levels whose opinions or advice she would utilize in determining whether the Montgomery County proposed plan met appropriate planning standards (Banning, Tr. 17585-86). Nonetheless, the Board notes Mrs. Banning's hope that planners would be able to address her criticisms and suggestions of deficiencies to make the plan as good as possible (Banning, Tr. 17621). Mrs. Banning agreed that if there were an emergency at Limerick prior to formal adoption of the plan, the current draft plan should be utilized (Banning, Tr. 17736).

Chester County

434. Robert J. Thompson is the Chairman of the Chester County Board of Commissioners (Thompson, Tr. 18807). Timothy R. Campbell is the Director of Emergency Services for Chester County (Campbell (Admitted Contentions), ff. Tr. 19852 at p. 1). Both testified that Chester County is well prepared for disaster emergencies. The Chester County DES has received three achievement awards from the National Association of Counties, including one for the development of an emergency plan for the Peach Bottom Atomic Power Station (Thompson, Tr. 18857; Campbell, Tr. 19943-44, 19947).

435. Past disasters in Chester County are comparable to a radiological emergency at Limerick, i.e., life threatening chemical spills with toxic vapors, fires and caustic spills (Thompson, Tr. 18833). Although an evacuation of the EPZ would involve a greater area, the procedures involved, the support organizations necessary to respond and their willingness to participate would be the same. For example, in an incident involving the Turco Chemical Company in Phoenixville in January 1983, Chester County and other emergency officials sustained a 10-day response, including a plan to implement an evacuation of the Borough of Phoenixville and surrounding areas, a population of about 15,000 to 20,000 people. The same expertise would be utilized on a larger scale for Limerick if need be (Thompson, Tr. 18836).

436. There is already in place a Chester County plan to respond to a radiological emergency at the Peach Bottom Atomic Power Plant, which is comparable in emergency planning assumptions and principles to the Limerick plan (Thompson, Tr. 18836-37, 18856-57).

437. Chester County believes that it is imperative that an emergency plan be reviewed and adopted prior to the issuance of a full-power license for Limerick (Thompson, Tr. 18829). It is also important that a plan be in place to meet any nonradiological emergency. While a particular plan has not been adopted, Chester County is nonetheless prepared to meet an emergency at Limerick at the current time (Thompson, Tr. 18831-32). Subject to further changes resulting from observer comments on the July 25 and November 20, 1984 exercises, the current Chester County plan (Commonwealth/Chester County Exh. E-1) represents the intended response of the county to an accident at Limerick. When appropriate, the final version will be represented to the County Commissioners for formal approval (Campbell (Deferred Contentions), ff. Tr. 19852 at p. 2).

438. If an emergency occurred today at Limerick, Chester County would expect to use the most recent draft of its plan to respond. That plan is workable and capable of being implemented. The plan would also provide an adequate basis for responding to any nonradiological emergency requiring evacuation or other response (Thompson, Tr. 18855; Campbell, Tr. 19957).

439. Although draft nine of the Chester County plan (Appl. Exh. E-2) represented the current draft at the time the hearing commenced, the Director of the Chester County DES testified as to the provisions of draft ten (Commonwealth/Chester County Exh. E-1), which had been published in the interim. The underlying concepts and principles of draft nine and draft ten of the Chester County plan are the same. Draft ten, however, reflects comments by PEMA and FEMA observers of the July 25 and November 20, 1984 exercises. As such, draft ten reflects any

substantial changes that were required as the result of any deficiencies in the exercises. Additionally, draft ten reflects comments from the informal PEMA and FEMA Regional Assistance Committee reviews and includes updated resource information (Campbell, Tr. 19953-55; Chester County/Commonwealth, Exh. E-1).

Berks County

440. LEA did not seriously contend that the Berks County Board of Commissioners would not adopt a form of the current draft plan received into evidence. In fact, LEA withdrew its proffer of Donald W. Bagenstose, Chairman of the Berks County Board of Commissioners (Tr. 18115). Accordingly, LEA presented no witness who could testify directly as to the intention of the Commissioners with regard to adoption of a plan.

441. Berks County has been engaged in planning for disaster emergencies since the passage of P.L. 1332 in 1978. The Berks County Emergency Management Agency ("EMA") has received an award for excellence in training and its Director has received two awards of excellence from the Commonwealth (Reber, Tr. 19787-88). Robert L. Reber, Director of the Berks County EMA, has stated that after minor changes have been made to the current draft (Appl. Exh. E-1), he intends to submit the Berks County draft plan to the Board of Commissioners with his recommendation for adoption (Reber, Tr. 19771, 19790-02). He further stated that there is no reason to believe that the Berks County plan will not be approved by the Commissioners when submitted upon his recommendation (Reber (Deferred Contentions), ff. Tr. 19729 at p. 1). Mr. Reber testified that the current draft of the Berks County plan is workable and capable of being implemented. If an accident were to occur tomorrow at

Limerick, Berks County would utilize the current draft in responding to the emergency (Reber, Tr. 19792).

442. Moreover, Mr. Reber testified that both the Commissioners and he regard the requirements of P.L. 1332 as mandatory and stated that it is the intention of Berks County to comply with those obligations (Reber, Tr. 19795). Under those circumstances, the Board has little difficulty in concluding that Berks County will indeed adopt an appropriate plan.

Borough of Pottstown

443. Mr. Edmund Skarbeck is president of the Borough of Pottstown (Skarbeck, Tr. 17764). Mr. Carroll Mattingly is the Pottstown transportation officer under its emergency plan (Mattingly, Tr. 17764).

444. The only concern stated by Mr. Skarbeck was a general reservation regarding the dependability of people in an emergency situation (Skarbeck, Tr. 17774). Nonetheless, Mr. Skarbeck expressed confidence in the borough coordinator's selection of individuals, largely borough officials, who would be available in the event of an emergency (Skarbeck, Tr. 17852-53).

445. The Pottstown transportation officer expressed only generalized concerns regarding availability of buses, based upon speculation as to congested traffic conditions and panic (Mattingly, Tr. 17814). The transportation officer had not reviewed the ETE study and has no experience, formal training or other background in traffic engineering, transportation engineering or model simulation of traffic flows (Mattingly, Tr. 17830-31). Nor had the traffic safety officer who had allegedly expressed similar concerns (Mattingly, Tr. 17848-49).

446. The Pottstown transportation officer expressed no concern over the number of transportation-dependent individuals responding to the Montgomery County public needs survey. On checking with certain respondents, he determined that they would not need publicly provided transportation in an emergency because they would be picked up by their children (Mattingly, Tr. 17792-93, 17836). The existing figures in the plans are basically reliable (Mattingly, Tr. 17837). Although the Pottstown plan states that only four buses are available locally, there are actually six available (Mattingly, Tr. 17800, 17843).

447. A number of Pottstown residents responding to the public needs survey who requested ambulance transportation did not actually require it. The Pottstown transportation officer confirmed with the Goodwill Ambulance Company that sufficient ambulances would be available to meet the stated needs under the Pottstown plan (Mattingly, Tr. 17800-01). Moreover, there is a mutual aid system by which townships can request ambulances from other Montgomery County townships (Mattingly, Tr. 17843-44). Many hearing-impaired individuals were taken off the hearing-impaired list because they have hearing aids (Mattingly, Tr. 17868).

Uwchlan Township

448. Stephen P. Grenz is a Supervisor on the Uwchlan Township Board of Supervisors (Grenz, Tr. 17888). He had no particular concern regarding emergency planning, but was examined by LEA on evacuation routing for Uwchlan Township. Mr. Grenz had no opinion as to whether particular segments of the roadway network in Uwchlan Township within the EPZ, or portions of Upper Uwchlan Township for which Uwchlan has traffic control responsibility, would impede or expedite evacuation in the event of a radiological emergency (Grenz, Tr. 17938, 17948).

449. Mr. Grenz had not reviewed the ETE study and was not familiar with simulated traffic flows related to a radiological emergency, as opposed to normal traffic flow during commuter hours. He stated that he would be satisfied if the ETE study considered traffic congestion at the intersection of Routes 100 and 113 and other potentially congested areas in Uwchlan Township, and if those traffic patterns had been reviewed by professional, competent authorities (Grenz, Tr. 17943-45, 17976). The record is clear that that has been done (Proposed Findings 1-85). Consideration of additional traffic control points would not preclude the Uwchlan Township Board of Supervisors from proceeding to adopt its plan. Amendments to the plan could be made as traffic and demographic changes develop (Grenz, Tr. 17948).

East Pikeland Township

450. John Yeager is the Chairman of the Board of Supervisors for East Pikeland Township (Yeager, Tr. 18004). While LEA attempted to establish that the Board of Supervisors had expressed certain concerns, based largely upon the statements of an ad hoc citizens committee which reviewed a now outdated version of the East Pikeland plan, it failed to establish any connection between the present views of the Board of Supervisors and those expressed in the report filed by the committee. Since no witness was produced to authenticate the report and to be cross-examined on its contents, it was excluded from evidence (LEA Exh. E-48; Tr. 18106-07).

451. Even if this Board were to consider the citizens committee two-page report, there is no evidence supporting the qualifications of its members with respect to State and federal planning requirements for radiological emergencies, or in the areas of transportation engineering,

traffic engineering and traffic modeling (Yeager, Tr. 18044). There is no evidence that any member of the Board of Supervisors, the East Pikeland Township Planning Commission, or even the members of the investigating committee at this time hold the views expressed in the correspondence dated July 18, 1984 and attachment (Yeager, Tr. 18045-46).

452. Although the citizens committee reviewing the East Pikeland plan provided certain comments to the East Pikeland Planning Commission, (Yeager, Tr. 18016; LEA Exh. E-48), there is no evidence that the committee's informal comments represent the views of the Board of Supervisors or the Township coordinator. Moreover, the letter dated July 18, 1984 from the Township Clerk to PEMA does not necessarily reflect the position of the township supervisors at this time (Yeager, Tr. 18017).

Upper Providence Township

453. Virgil P. Templeton is a member of the Upper Providence Township Board of Supervisors (Templeton, Tr. 18058). George Waterman is the Township Manager of Upper Providence Township (Waterman, Tr. 18058).

454. Despite speculative concerns as to whether volunteers would show up to man the township EOC in an actual emergency, the Upper Providence Township witness panel testified that the township coordinator and other EOC staff had determined the suitability and qualifications of individual volunteers to perform assigned responsibilities in an emergency (Templeton, Tr. 18089-90). No volunteer EOC staff individual has stated that he would be unavailable or unwilling to perform assigned responsibilities, nor did any fail to do so during the July 25, 1984 exercise (Waterman and Templeton, Tr. 18091-94). The Upper

Providence Township EMC reported that there were 25-30 volunteers for the July 25, 1984 Limerick exercise and that he was more than satisfied with their performance (Templeton, Tr. 18064).

455. Although the Upper Providence Township witnesses were questioned as to letters of agreement regarding services necessary to implement the township plan (Waterman, Tr. 18078-80), there was no evidence to establish that such agreements would be necessary to obtain existing available resources, except perhaps towing services (Waterman, Tr. 18079-80). No particular concern regarding the level of available towing services for Upper Providence Township was raised by the township coordinator (Waterman, Tr. 18081). Specifically, the panel stated that there are no shortages of towing services in the area and that it was understood that the county dispatcher could be called upon for additional towing services (Waterman, Tr. 18097).

456. Short of speculative concern as to whether the plan could manage an "all-out evacuation," the Upper Providence Township panel did not cite any portion of its draft plan it regarded as unworkable (Waterman, Tr. 18096-97). Such concern is unwarranted and will eventually be resolved as township officials become more knowledgeable in realistic evacuation assumptions (Proposed Findings 1-85).

Lower Providence Township

457. Richard Brown is the Chairman of the Board of Supervisors for Lower Providence Township (Brown, Tr. 18132). Harry Miller is the Fire Chief of the Lower Providence Volunteer Fire Company (Miller, Tr. 18134). Michael Conroe is one of five Captains of the Lower Providence Township Ambulance Service (Conroe, Tr. 18135).

458. Mr. Miller testified that fire company personnel from the Lower Providence Township Volunteer Unit cannot perform route alerting in a radiological emergency because 15 volunteers and a field officer are needed to maintain normal rescue and fire service within the township (Miller, Tr. 18142). Route alerting during the November 20, 1984 exercise was conducted by volunteers other than fire company volunteers (Brown, Tr. 18147). At that time, however, forty additional unassigned volunteers were available to perform route alerting if required. Only twenty-four individuals are required to cover all route alerting sectors (Miller, Tr. 18184-85). Route alerting in Lower Providence Township can be performed by volunteers other than fire company personnel utilizing automobiles with portable public address units (Miller, Tr. 18156).

459. Mr. Brown stated concerns regarding whether Applicant's employees who volunteered and were available to participate in the November 20, 1984 exercise would be available when called upon in an actual emergency. Despite those concerns, Mr. Brown acknowledged that the township coordinator is qualified to determine who would be a capable and efficient volunteer in the event of an actual emergency, and that he would trust his judgment (Brown, Tr. 18186). The Lower Providence Township EOC was adequately staffed and demonstrated an adequate capability to respond during the November 20, 1984 exercise (Brown, Tr. 18183; Miller, Tr. 18189; FEMA Exh. E-5, p. 6).

460. Applicant's employees who have volunteered for these assignments have agreed to serve for both radiological and nonradiological emergencies (Brown, Tr. 18197). Normal municipal staff turnover, including emergency staffing, ordinarily requires recruitment and retraining of new staff members (Brown, Tr. 18197). The Board sees no

merit in speculating about the motive of Applicant's employees in volunteering for such service, nor has the Board any reason to question their civic-mindedness in doing so (Brown, Tr. 18197). Certainly, no responsible coordinator would reject a volunteer simply because he is employed by the Applicant (Brown, Tr. 18197).

461. Lower Providence Township has passed an unmet need of four ambulances to Montgomery County to evacuate its non-ambulatory residents (Conroe, Tr. 18154; Appl. Exh. E-12, p. O-1). Under the Lower Providence Township plan, only nine residents require ambulance transportation (Appl. Exh. E-12, p. F-1). Mr. Conroe raised concerns regarding his ability to contact ambulance service workers (Conroe, Tr. 18157-58). His concern was evidently based on a highly exaggerated need for ambulances, created by his misreading of the plan's figures of those requiring ambulance transportation (Conroe, Tr. 18199). Moreover, the former chief of the Township Ambulance Squad, who participated in the November 20, 1984 exercise, concluded that several of the nine individuals listed in the plan for ambulance transportation could be moved by automobile (Miller, Tr. 18200).

462. There are two township ambulances; a third will be in service shortly (Conroe, Tr. 18200, 18203). The township's plan, however, commits only one ambulance for radiological emergencies (Appl. Exh. E-12, p. O-1). There are 45 to 55 active ambulance crew members in service at any given time (Conroe, Tr. 18204). The one crew committed to service under the plan is always on duty and immediately available (Conroe, Tr. 18204-05). The Board sees no notification problem with such an ample staff. Moreover, use of several individual pagers should resolve any concern.

463. Mr. Brown also contended that Lower Providence Township has responsibility for members of the public who might be within that portion of Valley Forge National Park located in Lower Providence Township in the event of a radiological emergency, but failed to state any particular responsibility which the township had with respect to those individuals (Brown, Tr. 18172, 18209).

464. The Board notes that the public alert and notification capability required under NUREG-0654, Criterion E.6, and Annex E will be provided by the siren system operated, in this instance, by Montgomery County (Appl. Exh. E-3, pp. C-1, C-2). One siren in particular is sited in the vicinity of that portion of the park in Lower Providence Township (Brown, Tr. 18238). The Board finds no requirement or necessity for the Lower Providence plan to make special provision for individuals utilizing the recreational areas of this portion of the park. The Board assumes that there are a variety of recreational areas in the EPZ covered by the siren system.

465. Mr. Brown also stated concerns regarding the evacuation route for Lower Providence Township and, like many other witnesses unfamiliar with large-scale emergency evacuation planning or the ETE study, erroneously confused peak hour commuter traffic problems with evacuation traffic (Brown, Tr. 18173). Like other lay witnesses, Mr. Brown was unfamiliar with the ETE study, had erroneously assumed that evacuation planning did not consider traffic congestion, and had no expertise or experience in transportation engineering, traffic engineering or traffic flow simulation of evacuation scenarios (Brown, Tr. 18212-18). Ultimately, Mr. Brown agreed that comparisons of commuter peak hour traffic and evacuation traffic were meaningless (Brown, Tr. 18218).

466. With regard to his concerns relating to the construction of a new prison in the township (Brown, Tr. 18172-74), the Board fails to see how any plan could address a facility not yet built. As with the other plans, the Montgomery County plan and/or Lower Providence Township plan will undoubtedly be amended for a variety of reasons, including specific measures to accommodate the evacuation of prisoners in the event of an actual emergency. The Board assumes that this can be done on the same basis as for the Graterford Prison, and that, with reasonable input and coordination from PEMA, the Graterford plan could perhaps serve as a suitable model.

467. Mr. Brown stated his concern regarding emergency telephone communications, which the township intends to resolve through the introduction of a private switch network (Brown, Tr. 18226). The Board regards this concern as unrealistic. It is important to bear in mind that, in the event of an actual emergency, not all EOC staff and support organization staff need to be reached immediately, nor must they be contacted by telephone (Proposed Findings 344-346, 348, 381-382). Once the underlying planning principles regarding alert and notification of emergency volunteers and facilities requiring special notification become clear to township officials, this concern will resolve itself. Even if there were some perceived problem in prompt telephone notification of those who must respond initially, the Board believes that the problem can be resolved, for example, by the purchase and use of individual pagers for key personnel (Conroe, Tr. 18235).

South Coventry Township

468. W.P. Richard Whitlock is the Chairman of the South Coventry Township Board of Supervisors (Whitlock, Tr. 18376). Because of certain actions taken by the township, Mr. Whitlock has not yet become knowledgeable as to the emergency planning principles and assumptions reflected in the various Limerick offsite plans. For example, Mr. Whitlock did not know that evacuation of the general public would not be in progress at or prior to the time volunteers would be reporting to the township EOC (Whitlock, Tr. 18435-36), or that it would be impossible for South Coventry to implement its emergency plan without the existence and operation of a township EOC (Whitlock, Tr. 18410, 18450). Finally, Mr. Whitlock did not understand that the Owen J. Roberts School District would implement its own plan and assume responsibility for the safety of its school children under that plan in the event of a radiological emergency (Whitlock, Tr. 18465-67).

469. Despite the requirements of Commonwealth law, the South Coventry Board of Supervisors indefinitely suspended the planning process in early 1984 because of litigation with Applicant regarding installation of sirens comprising a portion of Applicant's public alert and notification system for Limerick. This action effectively created the township's current state of unpreparedness. Mr. Whitlock acknowledged that he cannot presently identify specific unmet needs and that his concerns are "conjecture." This is attributable to the township's decision to suspend planning efforts (Whitlock, Tr. 18386-87, 18419-21, 18423-25; Bradshaw, Tr. 17331-32).

470. Nonetheless, Mr. Whitlock testified that the outcome of the siren litigation would not have any impact on township planning efforts (Whitlock, Tr. 18478-79, 18512).

471. In any event, the emergency planning concerns expressed by Mr. Whitlock, as discussed below, are either being addressed or have been resolved by the planning process. With regard to the necessary funds to provide and maintain emergency planning equipment, the Board takes judicial notice of the provisions of P.L. 1332 which, in accordance with the undisputed testimony of local, county and Commonwealth governmental officials, imposes a mandatory obligation under Sections 7501 and 7503 to maintain an emergency plan and applicable equipment and resources in place for use in responding to any emergency, radiological or nonradiological, natural or man-made. South Coventry officials intend to discuss with PEMA or other Commonwealth officials the availability of reimbursement for expenses incurred for emergency planning (Whitlock, Tr. 18445). Section 503 of Pennsylvania Act No. 147, approved July 10, 1984, was enacted in response, in part, to the concerns expressed by South Coventry regarding reimbursement for emergency planning and preparation expenses (Whitlock, Tr. 18511). Further, Applicant has already made considerable effort to provide EOC equipment and other resources, and any remaining unmet needs could be passed onto the county or PEMA (Whitlock, Tr. 18401, 18486).

472. Similarly, with regard to alleged manpower shortages, the record demonstrates that, with one other exception, each of the five counties and other 42 municipalities involved in emergency planning for Limerick have been able to muster the necessary staff (Proposed Findings 379-380). The Board therefore regards this as a resoluble problem.

473. Mr. Whitlock's concerns as to the use of two evacuation routes for South Coventry has been resolved. The South Coventry plan now states that all South Coventry evacuees will proceed along Route 23 West to a single host facility (Whitlock, Tr. 18395, 18456-57; Appl. Exh. E-35, pp. 13, J-1, Q-1). Other than a change in the evacuation route, the South Coventry Board of Supervisors has requested no changes in the its plan (Whitlock, Tr. 18432). Redrafting was simply a matter of "filling in the blanks" to add information as to personnel and resources (Whitlock, Tr. 18428-29).

474. Mr. Whitlock's concerns related to special institutions located in South Coventry Township, i.e., a nursing home, two preschools and a senior citizens center (Whitlock, Tr. 18399, 18472-74; Appl. Exh. E-35, p. R-1), are unfounded. These are precisely the kind of facilities which have been addressed either through separate plans for the facility or particularized provisions in the municipal and county plans (Proposed Findings 271-272, 274). There is no reason why those plans cannot provide reasonable assurance for the safety and welfare of affected persons on the same basis as similar facilities throughout the EPZ.

475. In estimating the need for ambulances in an emergency, Mr. Whitlock erroneously included ambulances needed to evacuate a nursing home, which has ambulances available under its own emergency plan (Whitlock, Tr. 18406-07; Appl. Exh. E-2, p. G-6-A-1).

476. Mr. Whitlock's concern over traffic conditions along Route 100 is insubstantial (Whitlock, Tr. 18399; see Proposed Findings 40-53). As for towing equipment, there is no reason why it was necessary for the township to own this equipment as opposed to dispatching a private service (Whitlock, Tr. 18399-400).

477. South Coventry Township does not have a designated EOC at this time (Whitlock, Tr. 18400). The South Coventry Board of Supervisors has not, however, explored the possibility of utilizing any of three available school buildings as an EOC, asserting that the Owen J. Roberts School District would require reimbursement (Whitlock, Tr. 18433-34, 18436-37). The Board believes that this option should be conisdered, given the undisputed testimony in the record that public school resources have been and would be routinely made available to assist in emergency planning as well as in response to an actual emergency (Proposed Finding 165).

478. Training has been offered to all South Coventry Township officials as well as its EOC staff, although such training has not yet been accepted (Whitlock, Tr. 18447). Because the township supervisors have not yet received training, they understandably have a number of unresolved questions regarding the status and content of their plan (Whitlock, Tr. 18448).

479. Nonetheless, the South Coventry Township Board of Supervisors understands that P.L. 1332 imposes a mandatory obligation to adopt an emergency plan to protect the public health and safety of its citizens and intends to work towards the adoption of a plan which meets the requirements of P.L. 1332 (Whitlock, Tr. 18471). Mr. Whitlock stated his belief that it is imperative for South Coventry Township to have a safe, workable plan, and that if a workable plan were presented, the Board of Supervisors would adopt it (Whitlock, Tr. 18425). Mr. Whitlock stated that, unquestionably, South Coventry has to have a plan that works and that, from the beginning, it has been a premise that South Coventry is going to have a good plan (Whitlock, Tr. 18493).

480. With the help of consultants and the representatives of county, Commonwealth and federal agencies, remaining concerns of South Coventry can be resolved (Whitlock, Tr. 18514-15). In fact, Mr. Whitlock gained considerable insight into emergency planning for Limerick just by listening to questions at the hearing (Whitlock, Tr. 18523).

481. In responding to a radiological emergency, Chester County could also protect the public health and safety of the citizens of South Coventry if that municipality had not yet adopted its plan (Thompson, Tr. 18856). Chester County has a responsibility under P.L. 1332 to protect its residents. If an emergency occurs, the provisions of the Chester County plan would be relevant to any municipality whether or not it had a plan (Thompson, Tr. 18866).

482. As reflected in the listing of municipal responsibilities under P.L. 1332 in its own plan (Chester County/Commonwealth Exh. E-1, pp. 17-18), Chester County expects that municipalities will comply with their statutory obligations (Campbell, Tr. 19961). Chester County, therefore, expects South Coventry to strive toward the development of a workable, implementable township plan. In the event that South Coventry defaults in that obligation for any reason, however, the County has authority under P.L. 1332 to act in order to protect the public health and safety of its citizens (Campbell, Tr. 19971-72).

483. South Coventry has a population of 1556 persons (Campbell, Tr. 19973; Chester County/Commonwealth Exh. E-1, p. L-1-1). For a community of that size, Chester County could perform a number of the functions which ordinarily would be performed at the township EOC, i.e., notification and verification, maintenance of a relocation information point for evacuated citizens, deployment of county employees to conduct route

alerting and coordination of the Pennsylvania State Police, which is the normal law enforcement agency for South Coventry (Campbell, Tr. 19975-76). In the absence of any unique planning needs not yet identified and after appropriate instructions from PEMA, Chester County would be able to carry out all of the emergency response functions which would otherwise be performed by South Coventry under its plan, i.e., provision of bus transportation for transportation-dependent individuals, assistance to disabled persons, providing ambulances where necessary, providing equipment for traffic control points, providing equipment for route alerting teams and other typical municipality needs. It would be possible to set up a subgroup of Chester County EOC staff in West Chester or some other location who could carry out those functions. It would not be necessary to man a local EOC within South Coventry (Campbell, Tr. 19976, 20010-11). PEMA concurs that this alternative means of providing an emergency response for South Coventry Township is adequate (Hippert, Tr. 19582-83). PEMA will coordinate with Chester County and supplement its response if necessary (Hippert and Taylor, Tr. 19611, 19613).

Douglass Township, Montgomery County

484. Hugh Kelly is the Chairman of the Board of Supervisors for Douglas Township (Kelly, Tr. 18540). Based upon his discussions with the Douglas Township coordinator, Mr. Kelly was concerned with the listing of individuals who may require special assistance and notification of hearing impaired individuals (Kelly, Tr. 18545). Specifically, the coordinator is concerned whether the information concerning transportation-dependent and hearing-impaired individuals in the plan is complete, but has not yet determined whether any additional surveys will

be necessary (Kelly, Tr. 18575). No particular problem exists, however, with conducting another survey to supplement the 1983 county survey (Proposed Finding 497). Additionally, there are township or county agencies which could assist in identifying hearing-impaired or non-ambulatory persons who might require assistance in an evacuation (Kelly, Tr. 18656).

485. Mr. Kelly expressed concerns regarding school planning, but had not yet had an opportunity to review the Boyertown Area School District plan (Kelly, Tr. 18576-79). He would be satisfied if there were a workable school district plan in place (Kelly, Tr. 18579).

486. Mr. Kelly's concern regarding operations of a township industrial plant (Kelly, Tr. 18648) have been adequately addressed by the special notification procedure for major county industries (Appl. Exh. E-3, pp. X-1, X-2, X-3, X-1-1).

487. The Board rejects as unjustified Mr. Kelly's admittedly speculative concern that drivers might disobey traffic officers at traffic control points in an actual emergency (Kelly, Tr. 18650-51; Proposed Finding 36).

488. In expressing concern that farmers might not wish to evacuate, Mr. Kelly had not yet reviewed the special provisions in the plans to treat them as emergency workers authorized to re-enter the EPZ (Kelly, Tr. 18658-59; see Proposed Findings 332-334).

489. Mr. Kelly also expressed reservations about the effectuation of an actual evacuation (Kelly, Tr. 18552-53). As with other witnesses, Mr. Kelly's concerns regarding commuter peak hour traffic congestion (Kelly, Tr. 18669-70) have no bearing upon an emergency evacuation because of the inherent differences in the origin and destination of

commuter and evacuation traffic flows (Proposed Finding 28). In any event, there is very little that Douglas Township can do to reduce overall traffic congestion. Therefore, this is not an issue which is likely to affect the adoption of the Douglas Township plan.

Union Township

490. A little less than half of Union Township lies within the EPZ (Lowery, Tr. 18762; Commonwealth Exh. E-9). Mary C. Lowery is the Union Township emergency coordinator (Lowery, Tr. 18683). Miss Lowery has informed the Board of Supervisors some time ago that she might not participate in an actual emergency, depending upon her personal situation (Lowery, Tr. 18733; Reber, Tr. 19804). Miss Lowery has missed all but a half dozen monthly training sessions over the past three years (Reber, Tr. 19803-04). As a coordinator, she will not vote on final approval of a plan, nor did she state that her testimony, with one exception, represented the views of the Union Township Board of Supervisors (Lowery, Tr. 18714). Accordingly, the Board was unable to give her testimony much weight.

491. The only obstacle to a workable, adoptable plan for Union Township expressed by Miss Lowery was that adequate personnel to implement the plan were not yet available (Lowery, Tr. 18714). With regard to EOC staffing concerns, Miss Lowery has identified five key personnel positions for each shift, which results in a total of ten individuals necessary to man the Union Township EOC in the event of an actual emergency (Lowery, Tr. 18704). At the November 20, 1984 exercise, Union Township demonstrated a complete first shift capacity (at least five) and indicated that additional staff were available (Bradshaw, Tr. 17329; FEMA Exh. E-5, p. 22). At this point, Union

Township has eight EOC volunteers (Lowery, Tr. 18703). Ten individuals, however, have received training (Bradshaw, Tr. 17029). The names of suitable volunteers were made available to Miss Lowery by Energy Consultants and Berks County (Lowery, Tr. 18703, 18727-29; Reber, Tr. 19777; Appl. Exh. E-94), and each individual indicated on initial contact a willingness to volunteer. Further efforts could be made to recruit those individuals (Lowery, Tr. 18729-31; Reber, Tr. 19777).

492. Miss Lowery has not compared her estimated staffing needs with other townships of comparable size or discussed them with Berks County planning officials (Lowery, Tr. 18734). The Board has reviewed Miss Lowery's explanation of her staffing needs in that context. Given the comparatively small population of Union Township, about 1,100 people living in the EPZ (Reber, Tr. 19800; Appl. Exh. E-47, p. 1), the Board believes that those staffing needs are truly overestimated and that many of the functions identified by Miss Lowery (Tr. 18746-48) could be eliminated altogether or combined with other assigned functions (Reber, Tr. 19801. This view is supported by Mr. Reber's testimony that the unmet staffing needs reported by the Union Township EMC are beyond all belief (Reber, Tr. 19776-77).

493. Some EOC staff functions could be combined with those of a neighboring municipality, as Mr. Reber has recommended (Reber, Tr. 19801). Even without such cooperation, only ten persons are needed to man the Union Township EOC effectively on a 24-hour basis in event of an emergency. Many unassigned functions under the Union Township plan could readily be combined with other functions to reduce outstanding needs, i.e., the deputy police service officer could also be the fire coordinator, the deputy fire/rescue officer could also be the deputy

radiological officer, and the transportation officer could function as the medical officer (Reber, Tr. 19801-03; Appl. Exh. E-1, p. I-1). Mr. Reber had scheduled a meeting for February 5, 1985 with the Union Township Board of Supervisors to resolve unmet EOC staffing needs (Reber, Tr. 19782).

494. Mr. Reber, Director of the Berks County EMA, testified that it might be desirable for Union Township to find another emergency coordinator who would be more interested in the job and willing to do whatever is necessary to get the job done (Reber, Tr. 19805-06). A replacement need not be a resident of Union Township (Reber, Tr. 19806). Mr. Reber stated that he would assist Union Township in finding a replacement (Reber, Tr. 19804), and do whatever is necessary in assisting Union Township to achieve full preparedness (Appl. Exh. E-93). In the Board's view, the unmet staffing needs for the Union Township EOC is an isolated problem. Given the evident determination by Berks County and Union Township, the problem will be satisfactorily resolved.

495. If an emergency at Limerick occurred tomorrow, Berks County could assume a number of the functions ordinarily performed by the Union Township EOC, i.e., notification, traffic control, obtaining a mutual aide fire company to perform route alerting, communications, and distribution of dosimetry/KI supplies. Routine township security is normally provided by the Pennsylvania State Police because there is no township police force. Based upon those considerations, Berks County could assume primary responsibility for the protection of the public health and safety of Union Township residents within the EPZ in the event of a radiological emergency (Reber, Tr. 19807-10). The Berks County Office of Emergency Management Services has indicated its

willingness to continue providing assistance to Union Township in developing a plan (Lowery, Tr. 18726; Appl. Exh. F-93).

496. Miss Lowery stated that, at the present time, the Union Township Fire Company has been unwilling to identify volunteers or make a commitment to performing its assigned responsibilities under the Union Township plan (Lowery, Tr. 18707). A maximum of six individuals would be needed for route alerting in Union Township. Twenty-six fire company volunteers have been trained for this and other assignments given the fire company under the Union Township plan (Lowery, Tr. 18737-38). The only apparent stumbling block is Miss Lowery's belief that not all twenty-six trained individuals are qualified to perform route alerting and her unwillingness to survey the firemen with regard to this assignment (Lowery, Tr. 18738-42). There is, however, a substantial historical record that volunteer fire companies do have available personnel and the capacity to respond to emergencies when needed (Campbell (Admitted Contentions), ff. Tr. 19852 at p. 14). Finding no particular problem which would preclude the fire company from performing its assigned responsibilities, the Board is confident that the Union Township Board will be able to overcome this problem.

497. Comparing the list of persons requiring special assistance in an evacuation with actual survey responses and an interview with a manager of a boarding home, Miss Lowery stated that she found certain discrepancies (Lowery, Tr. 18694-97). Although concerned with conflicting responses, Miss Lowery has not yet contacted the respondents to obtain clarification (Lowery, Tr. 18722). Another survey will be taken by all three counties (Hippert, Tr. 19587-88; Bradshaw, Tr. 16952,

17022-23, 17348). Mrs. Lowery can check any particular responses or nonresponses of concern to her at that time.

498. Miss Lowery's concerns regarding traffic congestion along the evacuation route arise from her unfounded assumption that such congestion would be unanticipated or would somehow render a planned evacuation ineffective (Lowery, Tr. 18711-13), and a misunderstanding of the time frame within which it is anticipated that an evacuation would be accomplished (Lowery, Tr. 18758-59). The Board regards both misconceptions as irrelevant (Proposed Findings 18, 28, 38-39).

Borough of Phoenixville

499. Bonnie K. August is the president of the Phoenixville Borough Council (August, Tr. 18870). There are 12 members on the Phoenixville Borough Council (August, Tr. 18871, 18980). Although Mrs. August has been very active in sharing her views on emergency planning with the public (August, Tr. 18917-28, 18979, 18998), she has not yet become conversant with some basic planning principles and many details of the Phoenixville plan. Mrs. August has not yet obtained instruction or training in emergency planning or the operation of Limerick (August, Tr. 18998).

500. Some of Mrs. August's prior statements raise doubts as to her knowledge of planning for Phoenixville. For example, she has publicly questioned whether $5,000 worth of equipment contributed to Phoenixville by Applicant for emergency preparation would be adequate, but has not discussed the equipment with the Phoenixville emergency coordinator (August, Tr. 18929-30; Appl. Exh. E-97). Nor did Mrs. August attempt to resolve any other outstanding concerns with the Phoenixville coordinator (August, Tr. 18931) or representatives of Energy Consultants, Applicant

or Chester County DFS (August, Tr. 18971-72). Only one other council member has allegedly expressed concerns similar to those of Mrs. August, and those concerns related solely to the adequacy of the evacuation routes (August, Tr. 18909-10).

501. In expressing concern regarding the needs of transportation-dependent individuals or others requiring ambulance service or special assistance, Mrs. August apparently misunderstood or was not familiar with the terms of the Phoenixville plan. For example, she did not understand that the Phoenixville Hospital has its own plan, including a statement of ambulance needs, distinct from the Phoenixville plan (August, Tr. 18880-81, 18882, 18935). There is an unmet need for ten ambulances under the Phoenixville plan, far less than the number of ambulances Mrs. August seemed to suggest (August, Tr. 18880-83; Appl. Exh. E-33, p. O-1). Moreover, the Phoenixville coordinator has not expressed any concern to her regarding the availability of ambulances and buses reported as an unmet need to Chester County (August, Tr. 18877).

502. With regard to senior citizens in the community, the Board likewise finds no basis for her assumption that a large number of ambulances would be required (August, Tr. 18881). Mrs. August was unfamiliar with the borough's list of transportation-dependent and special needs residents identified by the Chester County survey and could not state whether particular individuals of concern to her were included in the list (August, Tr. 18933-34; Appl. Exh. E-33, pp. F-1, G-1). Further, her reference to a few wheelchair residents in a senior citizen apartment house does not demonstrate any deficiency in the plan (August, Tr. 18883). Persons in wheelchairs frequently travel by

automobile and it is quite possible that those individuals have made prior arrangements with friends or families. Even if necessary, it would be a simple matter to survey the 50 apartments in that building to confirm the accuracy of this data (August, Tr. 18883, 18938). In short, Mrs. August's concern regarding the need for more ambulances than those listed in the Phoenixville plan is speculative (August, Tr. 18941-42).

503. Mrs. August also asserted that there are more than the 82 hearing-impaired individuals identified in the plan (August, Tr. 18880-81, 18940; Appl. Exh. E-33, p. F-1). Her testimony was not based upon her personal knowledge or review of the plan (August, Tr. 18940). In fact, the record demonstrates that the number of hearing-impaired in some plans has been overstated because persons who can hear properly with the help of hearing aids frequently responded to the survey (Proposed Finding 447). In short, there is no basis to doubt the accuracy of the figures compiled for Phoenixville in the public needs survey conducted by Chester County (August, Tr. 18933). The Phoenixville coordinator has not expressed any concern regarding the accuracy of public needs survey figures (August, Tr. 18879).

504. Mrs. August also expressed concern regarding the failure of certain Phoenixville residents to respond to the public needs survey and the fact that four individuals had allegedly contacted her with regard to their need for transportation in the event of an emergency (August, Tr. 18878). She did not know, however, whether those persons had responded to the public needs survey or contacted the Phoenixville coordinator to be included on the municipal list (August, Tr. 18936-37).

505. Mrs. August was unfamiliar with municipal plans for dispersing pick-up points for transportation-dependent individuals, and did not

understand that persons who could not walk to a pick-up point would be listed as an individual requiring special assistance (August, Tr. 18945-50). She identified a few individuals who might require special assistance in an emergency, but had not yet checked with the Phoenixville coordinator to determine if those individuals had responded to the survey (August, Tr. 18944). Nor did she understand the special arrangements made to notify day care and other special facilities, such as the King Terrace Senior Citizen Apartment House, at the alert stage of an emergency (August, Tr. 18950-52).

506. Mrs. August's concerns regarding traffic congestion at the intersection of Routes 23 and 29 arise from a misimpression that an evacuation would have to be accomplished quickly and without significant traffic queuing (August, Tr. 18955). As with other witnesses, the Board believes that Mrs. August has not yet had an opportunity to become familiar with the purposes of the ETE study and the principles and assumptions associated with a planned evacuation (Proposed Findings 1-85). Mrs. August has not yet discussed with the Phoenixville Police Chief whether he believes the traffic control points in the Phoenixville plan are adequate to maintain traffic control in the event of an evacuation (August, Tr. 18957).

507. Mrs. August expressed concerns regarding the possible contamination of Phoenixville water supplies in the event of an accident at Limerick. The Board believes that the generic concern among all Schuylkill users would be addressed by Commonwealth planning authorities such as PEMA, the Bureau of Radiation Protection and Department of Environmental Resources. Mrs. August stated a willingness to resolve her concerns with those agencies (August, Tr. 18966). Accordingly, the

Board believes that concerns regarding possible contamination of Phoenixville water supplies will not affect adoption of its plan.

508. Despite personal reservations at the time, Mrs. August acknowledged that the Phoenixville coordinator and all EOC volunteers are dedicated individuals and gave an excellent performance during the July 25, 1984 exercise (August, Tr. 18973-74).

509. If there were a radiological emergency at Limerick prior to adoption of a final plan by the Borough Council, Mrs. August would expect the existing draft plan to be utilized in responding to an emergency (August, Tr. 18983). Ultimately, it is the intention of Mrs. August that the Borough Council adopt the most workable plan possible for the protection of Phoenixville residents (August, Tr. 18903).

Skippack Township

510. Michael Giamo is a supervisor on the Board of Supervisors for Skippack Township (Giamo, Tr. 19068). While Mr. Giamo stated generally that no progress has been made in the ability of Skippack Township to provide for its transportation-dependent individuals (Giamo, Tr. 19082), the plan states that Skippack Township has requested two buses and that Montgomery County has identified and will meet that transportation need (Appl. Exh. E-3, p. I-3-3; Appl. Exh. E-20, p. O-1). Similarly, the unmet need for traffic control point personnel has been passed onto Montgomery County (Appl. Exhs. E-3, p. Q-1-1; Appl. Exh. E-20, p. O-1). Mr. Giamo did not appear to understand the planning process by which unmet needs at the township level are passed onto the county for satisfaction (Giamo, Tr. 19110; Proposed Finding 400).

511. Apparently confusing training sessions with the exercises conducted on July 25 and November 20, 1984, Mr. Giamo also expressed

concerns regarding the readiness of EOC staff. His only specific point seemed to be that public notification during the exercise should actually have been given rather than simulated (Giamo, Tr. 19089-90, 19142). Actually, both PEMA and FEMA gave the Skippack Township EOC a satisfactory rating on its activities during the November 20, 1984 exercise (Giamo, Tr. 19119-20; FEMA Exh. E-5, p. 15). There is no reason to question whether the Skippack Township EOC staff is currently in an adequate state of readiness to respond to any radiological emergency (Giamo, Tr. 19121).

512. The principal concern expressed by Mr. Giamo was the potential evacuation of prisoners from the Graterford Prison (Giamo, Tr. 19073). His specific concern with respect to adopting a workable plan for Skippack Township was designation of evacuation routes in the context of a potential evacuation of Graterford Prison (Giamo, Tr. 19093, 19129).

513. Mr. Giamo attended a briefing session with officials from PEMA and the Commonwealth's Bureau of Corrections regarding the concerns of Skippack Township relating to the potential evacuation of Graterford prisoners in September 1984 (Giamo, Tr. 19098-99). At that time, Mr. Giamo received a briefing on the details for such plans (Giamo, Tr. 19100). The Board is satisfied that final plans will accommodate the evacuation of these disparate populations.

514. Basically, Mr. Giamo did not know the source of evacuation routes designated in the Skippack Township plan or how evacuation was coordinated, nor had he consulted with Montgomery County or PEMA planning officials regarding any perceived inadequacy in those routes (Giamo, Tr. 19113-15, 19128; Appl. Exh. E-20, p. 14). Although Mr. Giamo had briefly examined the ETE study, he did not specify any

particular area of disagreement. In general, it is clear to the Board that Mr. Giamo has not yet achieved an understanding of the principles and assumptions associated with an emergency evacuation and the choice of an appropriate protective action (Giamo, Tr. 19115-18, 19151).

515. Although the Skippack Township Fire Company, a volunteer unit, initially indicated that it was not going to participate in any phase of an emergency response, it has since volunteered to participate at all but the general emergency stage (Giamo, Tr. 19078-79). At that point, responsibility for route alerting would be passed onto Montgomery County as an unmet need (Giamo, Tr. 19079; Appl. Exh. E-3, p. Q-1-1; Appl. Exh. E-20, p. O-1). At the time of the November 20, 1984 exercise, however, the township was able to obtain seventeen volunteers from the fire company who agreed to conduct route alerting (Bradshaw, Tr. 13437; FEMA Exh. E-5, p. 16). This is consistent with the historical record of the availability of volunteer fire company personnel (Proposed Finding 496). Presumably, there would be at least as great a response in an actual emergency.

516. In response to a letter to PEMA, dated June 22, 1984, from the Skippack Township solicitor, (Giamo, Tr. 19100-02; Appl. Exh. E-98), PEMA Director John Patten suggested that Skippack Township attempt to develop an auxiliary force of volunteers to perform route alerting at the general emergency stage. Mr. Giamo has not yet acted on this suggestion or determined from nearby fire companies whether, under the mutual aid program, another fire company could provide route alerting at that time (Giamo, Tr. 19106). Likewise, the township has not yet surveyed individual fire company volunteers to determine their personal

willingness to perform assigned route alerting in an actual emergency (Giamo, Tr. 19107).

517. In the event of an actual emergency, volunteers would likewise be solicited at the local level and, if they were not obtained, the need for route alerting personnel would be passed on to the county, which would assign another fire department through the county mutual assistance plan (Bradshaw, Tr. 13437; Bigelow, Tr. 14148, 14396). Mutual aid is a routine emergency response procedure expressly mandated by Section 7504 of P.L. 1332.

518. Mr. Giamo initially asserted that assignments for traffic control points in Skippack Township have not been resolved (Giamo, Tr. 19082). He later acknowledged that township fire police have volunteered to man traffic control points as stated in the township plan (Giamo, Tr. 19123; Appl. Exh. F-20, p. 15).

519. Notwithstanding any expression of concerns by Mr. Giamo, it is the intention of Skippack Township to resolve outstanding concerns in order to achieve a workable plan (Giamo, Tr. 19129). The township is most anxious to cooperate in planning (Giamo, Tr. 19130). Thus, Skippack Township intends to adopt a plan before a full-power license is issued for Limerick (Giamo, Tr. 19159). If an actual radiological emergency occurred prior to formal adoption of a plan, Skippack Township would rely upon the current draft in responding to the emergency (Giamo, Tr. 19145).

2. Bucks County

LEA-3

The Montgomery County RERP fails to provide reasonable assurance that the public will be adequately

> protected in that the Bucks County Support Plan, which is essential to the workability of the MontCo RERP, may not be approved. The present Board of Commissioners have [sic] little knowledge of the contents and implications of the Bucks County Support Plan. There is no assurance that the County will assume the responsibilities assigned to it in the Support Plan, rather than use County resources to help Bucks County people first. The Montgomery County Plan relies on the Support Plan in at least these ways:
>
> 1. facilities for relocation and mass care of evacuees
>
> 2. augmentation of emergency workers, including use of county resources, on a continuous 24 hour basis
>
> 3. See attachment "Excerpts and comments on the Bucks County Draft Evacuation Plan" for additional areas of support and interface.
>
> It is contended that without the approval of Bucks County Support Plan, the MontCo RERP is unworkable as it now stands.

520. Bucks County has maintained an emergency plan for at least 15 years. An annex to the plan addresses preparedness for radiological emergencies (McGill, Tr. 20365). At the time of the Three Mile Island accident in 1979, Bucks County assumed responsibility to receive and care for 15,000 evacuees. Although contacted on Sunday morning, plans were in effect by Monday afternoon to accommodate 15,000 potential evacuees from the Lancaster County area (McGill, Tr. 20366-67; Taylor, Tr. 19585).

521. The Bucks County support plan could be implemented in the event of a radiological emergency at Limerick so as to accommodate evacuees from Montgomery County. In order to respond to such an emergency, Bucks County would utilize the current draft plan (McGill, Tr. 20369).

522. The November 20, 1984 exercise indicated that Bucks County has the capability of implementing its support plan adequately. The exercise demonstrated the availability and willingness of emergency workers, such as police departments, fire companies, ambulance squads, fire police and school officials, to participate. There is no doubt that response would be adequate in a full-scale exercise (Asher and Kinard (Update), ff. Tr. 20150 at p. 2, Tr. 20169, 20280; McGill, Tr. 20386-87; Reiser, Tr. 18338-39).

523. The Bucks County Commissioners are withholding formal action on their support plan while awaiting the outcome of the evidentiary hearing before this Licensing Board as well as litigation in Bucks County regarding the construction of the Point Pleasant Pump Station (McGill, Tr. 20381). Thus, it appears that primarily political considerations must be resolved prior to formal adoption of the plan. In the interim, there is no reason why Bucks County emergency planning officials cannot rely upon the unadopted plan as a basis for responding to any radiological emergency at Limerick (McGill, Tr. 20400-01).

524. The Bucks County population is not at risk in a postulated Limerick emergency because the nearest portion of Bucks County is at least 13 miles from Limerick (McGill, Tr. 20385; Bradshaw, ff. Tr. 17191 at p. 9; 10 C.F.R. §50.47(c)(2)). Mass care centers in Bucks County are at least 20 miles from Limerick and are in consonance with State and federal guidance in this regard. Planning assumptions conservatively arrange for the mass care of 50 percent of the evacuating population, although actual evacuation statistics demonstrate that only 10 to 15 percent of the evacuees seek mass care or temporary relocation shelters in a disaster. Thus, adequate space would be available in the

designated Bucks County mass care centers for any residents spontaneously evacuating from areas of the county closer than 20 miles (Bradshaw, ff. Tr. 17191 at p. 9, Tr. 17353-54).

525. Inasmuch as the designated mass care centers for Bucks County are located as close as 20 miles from Limerick, it is likely that any residents of Bucks County who choose to evacuate despite the lack of any realistic threat to their safety would relocate to areas more distant from Limerick than any portion of Bucks County. Planning arrangements for such individuals are well beyond the scope of planning requirements and constitute an unfounded hypothetical concern (Bradshaw, ff. Tr. 17191 at p. 9).

526. The same emergency services personnel designated in the existing Bucks County plan as capable of 24-hour response would be utilized to address the emergency requirements of any spontaneous evacuation of Bucks County residents to other areas of the county. This presents no additional burden on emergency services because the need for mass care space has been conservatively estimated (Bradshaw, ff. Tr. 17191 at p. 9).

527. In the opinion of emergency planning professionals, there would not be any massive, spontaneous, evacuation of Bucks County residents which might affect the Bucks County support plan as drafted (Bradshaw, Tr. 17235-36). Based on the historical record, the most common problem in evacuation scenarios is that residents do not want to evacuate. The Bucks County coordinator, who has more than 18 years experience in emergency planning, has never stated that spontaneous evacuation would be a problem (Bradshaw, Tr. 17369-71).

528. There is no basis to assume that Bucks County will not adopt, in some form, a support plan to provide for approximately 24,400 Montgomery County evacuees. Based upon a recent meeting with the Bucks County commissioners, Mr. Hippert stated his belief that Bucks County would not refuse to cooperate in the event of an accident at Limerick (Hippert, Tr. ff. Tr. 19498 at p. 5). Additionally, the Director of PEMA has stated that, at this time, he does not believe it is necessary to seek another support county to replace Bucks County because he believes that any concerns expressed by Bucks County can be addressed within the context of the existing draft plan (Bradshaw, Tr. 17338).

529. A meeting was held on November 7, 1984 between PEMA Director John Patten and Commissioner Carl Fonash of the Bucks County Board of Commissioners Tr. 19526). To memorialize their discussions, Mr. Patten prepared a memorandum of understanding, which he signed and sent to Commissioner Fonash. In the memorandum, PEMA recognized some of Bucks County's concerns and stated its willingness to work with Bucks County to resolve or eliminate those concerns (Hippert, Tr. 19529, 19532; LEA Exh. E-61). The Memorandum of Understanding prepared by PEMA to record discussions in the November 7, 1984 meeting between Bucks County and PEMA accurately reflects the discussion and agreement that took place at that time (McGill, Tr. 20380-81).

530. From the perspective of PEMA, the Bucks County Commissioners' concern that emergency planning should include residents of Bucks County residing from 15 to 30 miles beyond Limerick results largely from a lack of communication and understanding (Hippert, Tr. 19535). At this point, the Bucks County Commissioners have not indicated to PEMA its decision regarding what, if any, measures it might choose to implement to protect

Bucks County residents in the event of a radiological emergency (Hippert, Tr. 19545). PEMA staff who reviewed the October 1983 draft of the Bucks County support plan considered it to be a very excellent plan suitable for use as a model by other counties (Hippert, Tr. 19584). PEMA believes that Bucks County has the resources and expertise to meet the requirements of Annex E and NUREG-0654 as a support county (Hippert and Taylor, Tr. 19585).

531. William H. Reiser, the Chief Clerk and County Administrator of Bucks County, was unfamiliar with the draft support plan for Bucks County (Reiser, Tr. 18264, 18267; Appl. Exh. E-4). LEA withdrew its proffer of testimony by the Chairman of the Bucks County Commissioners. Charles McGill, the Director of Emergency Services for Bucks County (McGill, Tr. 20363) did in fact testify as to his review and development of the Bucks County support plan. Therefore, the Board has given relatively little weight to Mr. Reiser's hearsay statements of the concerns expressed by some of the Bucks County Commissioners.

532. The Bucks County Commissioners have not assigned Mr. Reiser any particular responsibilities with regard to emergency planning (Reiser, Tr. 18286). Mr. Reiser was not familiar with any meetings held between the Bucks County Commissioners and PEMA officials. The Commissioners have not given any direction to Mr. Reiser with regard to particular plan procedures, or discussed their views with regard to reviewing and adopting a final draft of the Bucks County support plan (Reiser, Tr. 18296-97, 18306-07). As regards the letter dated July 17, 1984 from two Bucks County Commissioners to PEMA, Mr. Reiser did not know the source of the draft provided to him, and had had no discussions with either Commissioner prior to sending the letter. His knowledge of the matter

was limited to the content of the letter itself (Reiser, Tr. 18301, 18308).

533. Nonetheless, Mr. Reiser acknowledged that the Bucks County Board of Commissioners supports helping its neighbors in times of emergency and will try to adopt a plan based upon what they regard as reasonable concerns (Reiser, Tr. 18325, 18344). The Commissioners have never stated that they would be unwilling to consider a workable support plan for Bucks County (Reiser, Tr. 18309).

534. Mr. Reiser, who is the supervisor of the Director of Emergency Services (Reiser, Tr. 18265), testified that Mr. McGill is professionally competent and has adequately performed his responsibilities. Both Mr. Reiser and the Bucks County Commissioners would look to Mr. McGill with regard to his opinions and judgment as to the adequacy of emergency planning for Bucks County (Reiser, Tr. 18315).

III. CONCLUSIONS OF LAW

The Board has considered all of the evidence submitted by the parties. Based upon a review of the entire record in this proceeding and the foregoing Findings of Fact, the Board concludes that:

535. The emergency plans meet the requirements of 10 C.F.R. §50.47, and Appendix E to 10 C.F.R. Part 50, as well as the criteria of NUREG-0654, and provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency;

536. The issuance of an operating license to the Applicant will not be inimical to the common defense and security or to the health and safety of the public; and

537. Having fulfilled the requirements of 10 C.F.R. §50.12(a), an exemption from the requirements of 10 C.F.R. §50.47(a) and (b) to permit

operation above five percent of rated power during consideration of any contention related to emergency planning for the State Correctional Institute at Graterford is warranted and hereby granted.

538. Pursuant to 10 C.F.R. §2.760a and 10 C.F.R. §50.57, the Director of Nuclear Reactor Regulation should be authorized to issue to the Applicant, upon making requisite findings with respect to matters not embraced in this Initial Decision, a license authorizing operation of Limerick Generating Station, Units 1 and 2, at levels beyond five percent of rated power.

IV. ORDER

WHEREFORE, IT IS ORDERED, in accordance with 10 C.F.R. §2.760a and 10 C.F.R. §50.57, that the Director of Nuclear Reactor Regulation is authorized to issue to the Applicant, upon making requisite findings with respect to matters not embraced in this Initial Decision, a license authorizing the operation of the Limerick Generating Station, Units 1 and 2.

Pursuant to 10 C.F.R. §2.760 of the Commission's Rules of Practice, this Initial Decision will constitute the final decision of the Commission forty-five (45) days from the date of issuance, unless an appeal is taken in accordance with 10 C.F.R. §2.762 or the Commission directs otherwise. (See also 10 C.F.R. §§2.764, 2.785 and 2.786).

Any party may take an appeal from this decision by filing a Notice of Appeal within ten (10) days after service of this Initial Decision. Each appellant must file a brief supporting its position on appeal within thirty (30) days after filing its Notice of Appeal (forty (40) days if the Staff is the appellant). Within thirty (30) days after the period has expired for the filing and service of the briefs of all

appellants (forty (40) days in the case of the Staff), a party who is not an appellant may file a brief in support of or in opposition to the appeal of any other party. A responding party shall file a single, responsive brief regardless of the number of appellant briefs filed. (See 10 C.F.R. §2.762.)

IT IS SO ORDERED.

THE ATOMIC SAFETY AND
LICENSING BOARD

Helen F. Hoyt, Chairperson
ADMINISTRATIVE JUDGE

Richard F. Cole
ADMINISTRATIVE JUDGE

Jerry Harbour
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this ___ day of _____, 1985.

APPLICANT'S EXHIBIT LIST

Ex. No.	Description	Marked	Received
E-1	Berks County RERP	12848	13781
E-2	Chester County RERP	12848	13781
E-3	Montgomery County RERP	12848	13781
E-4	Bucks County RERP	12848	13781
E-5	Lehigh County RERP	12848	13781
E-6	Collegeville Borough RERP	12848	13781
E-7	Douglass Township RERP	12848	13781
E-8	Green Lane Borough RERP	12848	13781
E-9	Limerick Township RERP	12848	13781
E-10	Lower Frederick Township RERP	12848	13781
E-11	Lower Pottsgrove Township RERP	12848	13781
E-12	Lower Providence Township RERP	12848	13781
E-13	Lower Salford Township (part) RERP	12848	13781
E-14	Marlborough Township (part) RERP	12848	13781
E-15	New Hanover Township RERP	12848	13781
E-16	Perkiomen Township RERP	12848	13781
E-17	Pottstown Borough RERP	12848	13781
E-18	Royersford Borough RERP	12848	13781
E-19	Schwenksville Borough RERP	12848	13781
E-20	Skippack Township RERP	12848	13781
E-21	Trappe Borough RERP	12848	13781
E-22	Upper Frederick Township RERP	12848	13781
E-23	Upper Pottsgrove Township RERP	12848	13781
E-24	Upper Providence Township RERP	12848	13781

Ex. No.	Description	Marked	Received
E-25	Upper Salford Township RERP	12848	13781
E-26	West Pottsgrove Township RERP	12848	13781
E-27	Charlestown Township RERP	12848	13781
E-28	East Coventry Township RERP	12848	13781
E-29	East Nantmeal Township RERP	12848	13781
E-30	East Pikeland Township RERP	12848	13781
E-31	East Vincent Township RERP	12848	13781
E-32	North Coventry Township RERP	12848	13781
E-33	Phoenixville Borough RERP	12848	13781
E-34	Schuylkill Township RERP	12848	13781
E-35	South Coventry Township RERP	12848	13781
E-36	Spring City Borough RERP	12848	13781
E-37	Upper Uwchlan Township RERP	12848	13781
E-38	Uwchlan Township RERP	12848	13781
E-39	Warwick Township RERP	12848	13781
E-40	West Pikeland Township RERP	12848	13781
E-41	West Vincent Township RERP	12848	13781
E-42	Amity Township RERP	12848	13781
E-43	Boyertown Borough RERP	12848	13781
E-44	Colebrookdale Township RERP	12848	13781
E-45	Douglass Township RERP	12848	13781
E-46	Earl Township RERP	12848	13781
E-47	Union Township RERP	12848	13781
E-48	Washington Township RERP	12848	13781
E-49	Boyertown Area School District RERP	12848	13781
E-50	Daniel Boone Area School District RERP	12848	13781

Ex. No.	Description	Marked	Received
E-51	Downingtown Area School RERP District RERP	12848	13781
E-52	Great Valley School District RERP	12848	13781
E-53	Owen J. Roberts School District RERP	12848	13781
E-54	Phoenixville Area School District RERP	12848	13781
E-55	Methacton School District RERP	12848	13781
E-56	Perkiomen Valley School District RERP	12848	13781
E-57	Pottstown School District RERP	12848	13781
E-58	Pottsgrove School District RERP	12848	13781
E-59	Souderton Area School District RERP	12848	13781
E-60	Spring Ford Area School District RERP	12848	13781
E-61	Upper Perkiomen School District RERP	12848	13781
E-62	Montgomery County Transportation Group Implementing Procedures	12760	13781
E-63	Model Day Care Facility Plan	12760	13781
E-64	Offsite Bus Driver Training Program	12764	13781
E-65	School Teachers and Staff Training Module	12764	13781
E-66	School Officials Training Module	12764	13781
E-67	Evacuation Time Estimate for the Limerick Generating Station Plume Exposure Emergency Planning Zone (May 1984)	13796	14109
E-68	Map of Valley Forge National Park	13801	14109
E-69	Map of Marsh Creek State Park	13801	14109

Ex. No.	Description	Marked	Received
E-70	Undated cover letter from Samuel Ely, Director, Montgomery County OEP, to Montgomery County residents regarding special needs survey	15029	15029
E-71	Letter dated April 2, 1984 from A. Lindley Bigelow, Coordinator, Montgomery County OEP regarding special needs survey	15029	15029
E-72	Letter dated June 30, 1983 from William Gross, Gross Bus Service, to Dr. Claypool, Owen J. Roberts School District	15102	
E-73	Letter dated June 13, 1984 from William Welliver, Spring-Ford School District, to Spring-Ford bus and van drivers regarding RERP survey, and attached survey form	15564	15608
E-74	Letter dated June 11, 1984 from William Welliver, Spring-Ford School District, to all Spring-Ford employees regarding RERP survey, and attached survey form	15579	15608
E-75	Wissahickon School District response to Montgomery County Bus Transportation Provider Survey	16191	16227
E-76	Letter dated September 7, 1984 from A. Lindley Bigelow, Coordinator Montgomery County OEP, to Leona Flood, Director of Transportation, Wissahickon School District	16193	16227
E-77	Letter dated August 8, 1984 from Henry Tamanini, Energy Consultants, to Bernard Wolf, Camphill Special Schools	16240	16354
E-78	Letter dated August 14, 1984 from Bernard Wolf, Camphill Special Schools, to Henry Tamanini, Energy Consultants	16240	16354

Ex. No.	Description	Marked	Received
E-79	Letter dated August 20, 1984 from Henry Tamanini, Energy Consultants, to Bernard Wolf, Camphill Special Schools	16240	16354
E-80	55 Pa. Code §4600.194	16242	16354
E-81	Letter dated March 8, 1982 from Bernard Wolf, Camphill Special Schools, to John Perry, and attached Draft Emergency Plan	16243	16354
E-82	Cover letter dated November 27, 1984 from John Cunnington, Energy Consultants, to Andrew Dill, Kimberton Farm School, and attached Kimberton Farm School Draft RERP	16321	16354
E-83	Lower Merion School District response to Montgomery County Bus Transportation Provider Survey	16372	16520
E-84	Letter dated September 12, 1984 from C.A. Matson, Lower Merion School District, to A. Lindley Bigelow, Coordinator Montgomery County OEP	16375	16520
E-85	Letter dated April 30, 1984 from James B. Pugh, Superintendent Lower Merion School District, to A. Lindley Bigelow, Coordinator Montgomery County OEP	16378	16520
E-86	North Penn School District response to Montgomery County Bus Transportation Provider Survey	16438	16520
E-87	Upper Dublin School District response to Montgomery County Bus Transportation Provider Survey	16478	16520
E-88	Memorandum dated November 27, 1984 from C.G. Brown to Mrs. Withsosky, Upper Dublin School District, providing names of bus drivers	16513	16520
E-89	Uppatinas Open Community School RERP	16549	16560

Ex. No.	Description	Marked	Received
E-90	Springfield Township School District response to Montgomery County Bus Transportation Provider Survey	16669	16682
E-91	Cover letter dated August 29, 1984 from Dr. Sosnowski, Department of Public Welfare, Commonwealth of Pennsylvania regarding Model Day Care Plan, and attached Model Day Care Plan	16842	16874
E-92	Revised map of Valley Forge National Park	17051/17174	17174
E-93	Letter dated August 17, 1984 from Robert Reber, Director, Berks County Emergency Management Agency, to Donald Gutekunst, Chairman, Union Township Board of Supervisors	18727	19008
E-94	Cover letter dated July 12, 1984 from Ronald Deck, Energy Consultants, to Mary Catherine Lowery, Emergency Management Coordinator, Union Township, and attached PECO volunteer forms	18728	19008
E-95	Letter dated April 2, 1984 from Ronald Deck, Energy Consultants, to Mary Catherine Lowery, Emergency Management Coordinator, Union Township	18751	19008
E-96	Schuylkill Bugle article by Bonnie August (Vol. 1, No. 6, 1984)	18927	19006
E-97	Schuylkill Bugle interview of Bonnie August (Vol. 1, No. 4, 1984)	18927	19006
E-98	Letter dated August 16, 1984 from John L. Patten, Director, PEMA, to Alan E. Boroff regarding Skippack Township concerns	19102	19169

Ex. No.	Description	Marked	Received
E-99	Cover letter dated September 7, 1984 from A. Lindley Bigelow, Coordinator, Montgomery County OEP, to Andrew Forsyth, Transportation Coordinator, North Penn School District regarding Letter of Understanding	19285	19287
E-100	Undated cover letter from Robert L. Reber, Director, Berks County Emergency Management Agency regarding special needs survey	19813	20093
E-101	PECO/Limerick Offsite Training Program for the Agricultural Community	19830	20093
E-102	Letter dated January 15, 1985 from V.S. Boyer, Senior Vice-President, PECO, to Timothy Campbell, Director of Emergency Services, Chester County regarding reimbursement of bus operators	19971	20093
E-103	Memorandum dated November 5, 1984 from Timothy Campbell, Director of Emergency Services, Chester County, to Limerick EPZ Emergency Management Coordinators regarding participation in November 20, 1984 supplemental exercise	19979	20093
E-104	Cover letter dated September 13, 1984 from Ralph J. Hippert, Deputy Director, PEMA - Office of Plans and Preparedness, to Vince Boyer, Senior Vice-President, PECO, and attached September 6, 1984 agreement between PECO and the Commonwealth of Pennsylvania on dosimetry	20264	20264
E-105	Memorandum dated November 28, 1983 from Citizens Task Force for Developing Emergency Planning Guidelines to all staff of the Owen J. Roberts School District regarding staff survey, and attached survey form	20347	20347

Ex. No.	Description	Marked	Received
E-106	Memorandum dated May 11, 1983 from the Task Force for Development of School Emergency Planning Guidelines to all teachers of the Owen J. Roberts School District regarding resource survey, and attached survey form	20348	20348
E-107	Owen J. Roberts School District Bus Driver Questionnaire	20349	20349